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DISEASES

OF THE

NERVOUS SYSTEM:

BEING

A TREATISE ON SPASMODIC, PARALYTIC, NEURALGIC
AND MENTAL AFFECTIONS.

FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE.

BY

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OF MEDICAL EXAMINERS OF BROWN
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PREFACE.

THE chief functions of the cerebro-spinal nervous system are motion, sensation and mental action. The consideration of these functions constitutes the subject-matter of the present volume. Many of the diseases we have described are now known to depend upon organic changes in the nerve centres, and therefore, so far as their pathology is concerned, can no longer be regarded as purely functional; but the pathology of a disease and the disease itself, are two very different things, although, singularly enough, they have been, and still are, frequently confounded with each other. If perversion of function is a disease, then all the diseases described in this volume are functional, though some, and perhaps all of them, have an organic basis. The paralysis arising from structural changes in the nerve centres is just as much *disease* as the structural changes themselves, though the pathology of the former can only be understood by a knowledge of the latter. We have not hesitated, therefore, to include under this title even such disorders as "Progressive Bulbar Paralysis," since the only objection that can be urged against it is purely technical. For if there is any meaning in the term, then all spasmodic, paralytic, neuralgic and mental affections are functional, whether organic alterations are associated with them or not. In fact, we might go further, and assert, as many do, that disease is always functional—that there is no such thing

as disease entity. This is not the place to discuss this subject, but it is certain that the converse of the proposition admits of no question, namely: that functional derangement is always and everywhere, disease; and hence, that our classification of nervous disorders, however much it may conflict with the notions of those who hold to a material basis for disease, is not, strictly, any too comprehensive. We do not object, however, to the current view of pathologists on this subject, for, even if it serves no other purpose than that of elucidating the history and development of diseased action, it is not without great benefit to medical science. For this reason, we have endeavored to bestow upon this branch of our subject all the care and attention which its importance demands.

In order to render the work more practical, the author, availing himself of the large amount of clinical material at his command, has selected for illustration such cases as seem to him to be best adapted for that purpose. Hence, in lieu of the mere synopsis usually given, which is often too meagre to furnish the practitioner with a correct picture of either the disease or its treatment, care has been taken to give all the more important clinical illustrations in sufficient detail to obviate any such objection. It has been well said, that the character of a man may generally be known by the coat he wears; and we think the simile holds good with reference to clinical illustrations of disease. If complete, they bring disease before the student and practitioner in the same vivid and practical manner, as does the study of it at the bedside of the patient. And as the sight of an object will be likely to convey a better idea of it than the most labored description, so will a well-worded clinical illustration be apt to make a better and deeper impression upon the mind of the reader.

In the preparation of this manual, the author has steadily kept in mind the requirements of both students and practi-

tioners of medicine. He has sought information from every source within his reach, and has spared no pains to bring the work up to the present advanced state of the science. The medical journals of this country and of Europe have not only been freely laid under contribution, but have been diligently searched for such newly-discovered and accurately-recorded facts, as pertain to nervous diseases, in the hope, that, while far from exhausting the class of subjects of which it treats, the work may meet the every-day wants of the profession, and at the same time prove useful as a text-book for students. For the material thus furnished, the author has endeavored to give proper credit in the body of the work.

CHARLES P. HART.

Wyoming, Ohio, March, 1881.

CONTENTS.

	PAGE
PREFACE	3

PART I.

PHYSIOLOGY OF THE CEREBRO-SPINAL CENTRES.

CHAPTER I.

GENERAL REMARKS ON NERVOUS DISEASES.

Meaning of the term 'functional,' as applied to nervous diseases—Classes so called—Organic and histological changes—Our inability to detect them, no proof of their non-existence—Opinion of C. Hanfield Jones—Atrophy of nerve-tissue—Anstie on neuralgia—A knowledge of nerve-lesions of the highest importance in the interpretation of functional phenomena,	9
--	---

CHAPTER II.

FUNCTIONS OF THE CEREBRAL CORTEX AND LOBES.

Hitzig and Fritsch's experiments—Motor and sensorial areas—Petrina's observations upon cerebral tumors—Nothnagel and Ferrier's experiments—Longet's investigations—Loss of power from destruction of nerve-centres not always permanent—Flourens's law of vicarious action—Niemeyer's theory of collateral œdema—Tumors of the convexity—Motory centres in the ape—Hitzig and Stark's observations—Tumors in the anterior lobes—Bernhart's observations—Lateral, vertical and posterior lobes—Scholz's observations—Lesions of the right hemisphere generally more serious than those of the left—True seat of aphasia—Double perceptions—Researches of Eckhard, Lemoigne and Lusane,	11
---	----

CHAPTER III.

FUNCTIONS OF THE CEREBRAL GANGLIA.

Longet on the corpora striata—Tremor and chorea produced by minute emboli—Effects of tumors, pressure and faradization—Crossed paralysis, loss of consciousness, convulsions, psychical and intellectual disturbances, tremor, chorea	
---	--

and amblyopia—Lesions of the thalami optici—Effects similar to those of the striated bodies, but not so marked—Sclerose en plaques—Longet on their removal—Effects of faradization, tumors, abscesses and hemorrhage in the optic thalami—Charcot and Veyssiere's researches on these ganglia—Injury of the pedunculus cerebri—Charcot's researches—Crossed paralysis and vaso-motory disturbances—Paralysis of the bladder—Lesions of upper and lower part of the crura cerebri—Ocular disturbances, vertigo and unilateral position of body and bulbi—Lesions of the pituitary body—Mental disturbances and diabetes mellitus—Cerebellar disease—Incoördination of muscular movements—Cerebellar paralysis—Sexual excitement—Ferrier on the function of coördination—Diseases affecting the tubercula quadrigemina—Crossed effect upon vision—True optic ganglia, but function not limited to vision—Emotional expression—Faradization produces complex movements and peculiar cries—Epileptic moaning—Inhibitory centre of reflex action—Lesions of the pons Varolii—Crossed paralysis and coma—Influence on speech, 16

CHAPTER IV.

FUNCTIONS OF THE MEDULLA OBLONGATA AND SPINAL CORD.

Crossed action of fibres—Labio-glosso-laryngeal paralysis—The respiratory centre—Spasm of the glottis—Marshall Hall's theory of reflex action—Dr. Meryon on this theory—Dr. Schuetz on the etiology of infantile convulsions—Seeligmüller's case of paralysis and atrophy—Wernich on the etiology of eclamptiform convulsions—Brown-Séquard and Westphal's experiments on guinea pigs—Researches of Billroth and Briond—Hecker's case—Apostoli on ataxia locomotrice and grey degeneration of the posterior columns of the cord—Subsidiary vaso-motor centres in the cord—Schiff on vicarious interchange of functions of the cord—Different centres for the lower sphincters, . . . 21

PART II.

DERANGEMENT OF THE MOTOR FUNCTION.

SECTION I.

Spasmodic Disorders.

CHAPTER I.

CONVULSIONS.

Convulsions—Meaning of the word—Tonic and clonic spasm—Limitation of the terms—The two synonymous, 27

1. *Infantile Convulsions.*

How divided—Centric or sympathetic c.—Eccentric or reflex c.—Secondary or sympathetic c.—Predisposing causes—Heredity—Nervous susceptibility—

General debility—Exciting causes—Cerebro-spinal traumata—Irritation of peripheric nerves—Errors in diet—Dentition—Helminthiasis—Burns, blisters, etc.—Genito-urinary irritation—Rectal croup—Diarrhœa—Peculiar causes—Acute exanthemata—Anæmia—Symptoms—Prognosis—Results—Treatment—General t.—Prophylactic t.—Medical t.—Illustrations—Compression of the carotids, 28

2. *Convulsions of the New-Born.*

Very rare in this climate—Great Britain and Ireland—Rice plantations—Causes—Inflammation and ulceration of the umbilicus—Cerebro-spinal hemorrhage—Symptoms—Prognosis and treatment, 46

3. *Convulsions of Adults.*

Two classes, puerperal and non-puerperal—The former connected with the puerperal state—Other varieties, 48

(1.) *Puerperal Convulsions.*

During pregnancy—During labor—After labor—Causes—Predisposing c.—Efficient c.—Exceptional c.—Symptoms—Prognosis—Treatment—Artificial delivery—Medical treatment—Clinical illustrations, 48

(2.) *Non-puerperal Convulsions.*

Uræmic c.—Cholæmic c.—C. from inanition—Hydræmic c.—Treatment—General t.—Medical t.—Synopsis of t.—Illustrations, 56

CHAPTER II.

EPILEPSY.

Meaning of the term—History—Demoniac possession—General description—Epileptic aura—Paroxysm—Grand mal and petit mal—Other varieties—Thalamic e.—Cortical e.—Vaso-motory e.—Reflex e.—Results—Causes—Predisposing c.—Exciting c.—Efficient c.—Constitutional c.—Syphilitic epilepsy—Differential diagnosis—Treatment—During the fit—Between the fits—Synopsis of t.—Medical t.—Clinical indications and illustrations, . . . 61

CHAPTER III.

HYSTERO-EPILEPSY.

Hysteria a form of mental derangement—Not to be confounded with the reflex phenomena constituting the fit—Hystero-epilepsy—History of the disease—Meaning of the term—Subjects of the disease—Symptoms—Diagnosis—Compression of the ovaries—Temperature—Causes—Pathology—Treatment—Cannabis indica, 75

CHAPTER IV.

CHOREA.

Meaning of the term—Chorea magna and minor—C. a disease of childhood—Symptoms—Hemichorea—C. paralytica—Post-paralytic c.—Differentiation—

Causes—Cerebral and spinal c.—Prognosis—Treatment—Antero-lateral and posterior spinal anæmia—Ice-bags—Electricity—Clinical indications and illustrations, 83

CHAPTER V.

TETANUS.

Forms and varieties—Trismus nascentium—Traumatic tetanus—Symptoms—Tetanic rigidity—Temperature—Sudden death—Influence of age and sex—Of cold—Rheumatic tetanus—Sympathetic t.—Blood poisoning—Pathology—Prognosis—Treatment—Sweating process—Illustrative cases, . . . 102

CHAPTER VI.

HYDROPHOBIA.

Definition—History—In dogs and man—Symptoms—Stage of delirium—Of recrudescence—Of spasm—Etiology—Is h. a disease of the imagination?—Does it ever occur spontaneously in man?—Susceptibility of the human subject to the poison—Pathology—Rabies in the dog, symptoms of—Treatment—Russian steam baths—Liquor ammoniæ and cedron as prophylactics—Clinical indications and illustrations—Faradization and galvanism, . . 118

CHAPTER VII.

CATALEPSY.

Definition—Symptoms—Suspended animation—Causes—Most frequently met with in hysterical subjects—Pathology—No constant morbid alterations met with—Treatment—Faradization—Clinical indications and illustrative cases, 130

SECTION II.

Paralytic Disorders.

CHAPTER I.

PARALYSIS IN GENERAL.

Definition of paralysis—Generally a symptom of cerebral or spinal disease—Hemiplegia—Paraplegia—Complete p.—Partial or incomplete p.—Paresis—Akinesia—Anæsthesia—Causes—Heredity, 134

CHAPTER II.

HEMIPLEGIA.

Paralytic stroke—Symptoms—Etiology, pathology, etc.—Corpus striatum hemorrhage—Softening produced by an embolus or thrombus—Facial palsy—Differentiation—Burns—Tobacco—Syphilis—Treatment—Galvanism and faradization—Clinical indications and illustrations, 136

CHAPTER III.

PARAPLEGIA.

Definition—Most frequent cause, myelitis—Hemi-paraplegia—Paresis—Sensibility and pain—Spinal epilepsy—Paralysis of the bladder—Hyperæsthesia and anæsthesia—Bedsores and cystitis—Local gangrene—Impaired nutrition—Cold abscesses—Decubitus and progressive muscular atrophy—Hydrorachis acquisita—Paraplegia epidemica—Pathology, etiology, etc.—Softening and abscess—Sclerosis—Treatment—Convulsions—Faradization, galvanism and baths—Clinical indications and illustrative cases, 142

CHAPTER IV.

INFANTILE SPINAL PARALYSIS.

Essential paralysis of childhood—Pathology—Symptoms—Prognosis—Fatty degeneration—Causes—Treatment—Electricity—Bathing—Clinical indications, 154

CHAPTER V.

FACIAL PARALYSIS.

A variety of peripheral paralysis—An affection of the portio dura—Symptoms—Parts affected—Diagnosis—Fifth nerve—Third nerve—Prognosis—Pathology—Causes—Treatment—Electricity—Other external measures—Shampooing—Clinical indications and illustrations, 158

CHAPTER VI.

DIPHTHERITIC PARALYSIS.

History—Hippocrates, Aretæus and Bretonneau—Two forms of the disease—Symptoms—Prognosis—Etiology and Pathology—Microphites—Anatomical lesions—Treatment—Electricity—Clinical indications and illustrative cases, 164

CHAPTER VII.

PROGRESSIVE BULBAR PARALYSIS.

History—Duchenne, Trousdale, Charcot, Kussmaul, Joffroy and Hammond—Symptoms—Diagnosis—Facial paralysis—Ordinary paralysis—General p. of the insane—Progressive muscular p.—Aphasia—Prognosis—Etiology and pathology—Chronic sclerosing myelitis—Treatment—Plumbum, 168

CHAPTER VIII.

GENERAL PARALYSIS OF THE INSANE.

Its nature—Symptoms—"Mania de grandeur"—Causes—Pathology—Chronic encephalitis—Prognosis—Treatment—Clinical indications and illustrations, 173

CHAPTER IX.

PROGRESSIVE MUSCULAR ATROPHY.

Not a muscular but a spinal affection—Symptoms—Atrophy of the voluntary muscles—In children, pseudo-hypertrophy—Causes—Heredity—Pathology—Myopathic and neuropathic theories—Prognosis—Treatment—Faradization and galvanism—Remedies, indications and illustrations, . . . 179

CHAPTER X.

PROGRESSIVE LOCOMOTOR ATAXY.

Reasons for including this disease among paralytic disorders—History—Symptoms—Duchenne's three stages—Hyperæsthesia and anæsthesia—Incoördination—Diagnosis—Causes—Syphilis and tobacco—Pathology—Posterior spinal atrophy and sclerosis—Prognosis—Treatment—Electricity—Lukewarm baths—Remedies, clinical indications and illustrative cases, . . . 184

CHAPTER XI.

PARALYSIS AGITANS.

Symptoms—Tremor—Paralysis—Muscular contractions—Diagnosis—Tremor senilis—T. mercurialis—T. saturninus—T. potatorum—T. simplex—Multiple sclerosis—Etiology, pathology, etc.—Treatment—Faradization and galvanism—Remedies, clinical indications and illustrations, . . . 195

CHAPTER XII.

SCRIVENER'S PALSY.

Symptoms—A peculiar form of local spasm—Diagnosis—Etiology, pathology, etc.—Treatment—Galvanism—Massage—Stimulating baths and embrocations—Remedies and indications, . . . 201

CHAPTER XIII.

APHASIA.

Meaning of the term—Varieties—History and description—Agraphia—Transitory form—Connection with right-sided hemiplegia—Etiology, pathology, etc.—Treatment—Syphilis—Congestion—Anæmia—Epilepsy—Clinical indications and illustrations, . . . 205

CHAPTER XIV.

PARALYTIC APHONIA.

Derivation and meaning of the term—Symptoms—Etiology, pathology, etc.—Diagnosis—Prognosis—Treatment—Electricity—Massage—Remedies, clinical indications and cases, . . . 214

PART III.

DERANGEMENT OF THE SENSORY FUNCTION.

CHAPTER I.

NEURALGIA.

Meaning of the term—Symptoms—Periodical neuralgia—Paræsthesia—Sensitive-
ness to pressure—Varieties—Causes—Heredity—Diagnosis—Prognosis—
Treatment, 219

CHAPTER II.

HEMICRANIA.

Synonyms—Symptoms—Mégrim—Causes—Influence of sex and heredity—Diag-
nosis—Tender points of Valleix—Prognosis—Pathology—Two forms of the
affection—Spasm and paralysis of the vessels—Treatment—Clinical indica-
tions and illustrations, 223

CHAPTER III.

NEURALGIA TRIGEMINI.

Synonyms—Varieties—Symptoms—Sensitive points—Causes—Heredity—Diag-
nosis—Pathology—Prognosis—Treatment—Remedies, clinical indications
and illustrative cases—Local treatment—Electricity—Nerve-stretching—
Galvanism—Chloral hydrate, 237

CHAPTER IV.

INTERCOSTAL NEURALGIA.

Pleurodynia—Symptoms—Tender points—Mastodynia—Etiology, pathology, etc.
Herpes zoster—Diagnosis—Mistakes in—Prognosis—Treatment—Galvanism
and faradization—Remedies, indications and clinical illustrations, . . . 249

CHAPTER V.

SCIATICA.

Parts affected—Symptoms—Tender points of Valleix—Glossy skin—Eczema—
Atrophy and paralysis—Causes—Pathology—Temperature—Diagnosis—
Prognosis—Treatment—Fatty food—Galvanism—Artificial warmth—Elec-
tricity—Acupuncture and electro-puncture—Nerve-stretching—Clinical in-
dications and illustrative cases, 257

CHAPTER VI.

ANGINA PECTORIS.

Synonyms—Definitions—Symptoms—Crampoide form—Spinal or syncopal form
—Recurrent form—Causes—Pathology—Suppressed neuralgia—Prognosis—

Treatment—Amyl nitrite—Skim-milk—Galvanism—Remedies, clinical indications and illustrations, 269

CHAPTER VII.

GASTRALGIA.

Neuralgia of the stomach—Symptoms—Secondary phenomena—Pyrosis—Causes—Dyspepsia—Tobacco—Tea and coffee—Diagnosis—Treatment—Fomentations—Galvanism—Remedies, indications and clinical cases, . . . 283

CHAPTER VIII.

NEURALGIA OF THE FEMALE GENITAL ORGANS.

Vaginodynia—Symptoms—Hysteralgia—Symptoms—Ovaralgia—Compression of the ovaries—Hysteria—Symptoms—Causes—Prognosis—Treatment—Faradization and galvanism—Vaginal douche—Remedies, clinical indications and illustrations, 293

CHAPTER IX.

SPINAL IRRITATION.

Definition—Symptoms—Their diversity and changeableness—Causes—Mostly confined to adult females—Pathology—Anæmia of the cord—Diagnosis—Differentiation—Prognosis—Treatment—Galvanism—Clinical illustrations and indications, 301

PART IV.

DERANGEMENT OF THE MENTAL FUNCTION.

SECTION I.

Moral Disorders.

CHAPTER I.

HYSTERIA.

Definition—Hysterical knee—Nature—Carnomania—Cases illustrating its mental nature—Symptoms—The hysteric fit—Mental symptoms—Diagnosis—Hysterical hemoptoe—Causes—Prognosis—Treatment—Remedies, clinical indications and illustrations, 311

CHAPTER II.

HYPOCHONDRIASIS.

Its nature—Symptoms—Causes—Prognosis—Treatment—Remedies, indications and clinical cases, 324

CHAPTER III.

MELANCHOLIA.

Definition—Symptoms—Varieties—Causes—Heredity—Treatment—Clinical illustrations and indications, 332

CHAPTER IV.

MORAL INSANITY.

Definition, history and symptoms—Etiology, diagnosis, etc.—Pathology—Treatment—Illustrative cases, 339

SECTION II.

Intellectual Disorders.

CHAPTER I.

MANIA.

Different forms of insanity—Symptoms—Temperature—Puerperal mania—Causes—Heredity—Moral and physical causes—Pathology—Cerebral irritation, excitement and depression—Diagnosis—Hallucination—Want of motive—Absence of volition—Prognosis—Structural changes—Duration, etc.—Treatment—Asylums—Home treatment—Private treatment—Medical treatment—Remedies, indications and illustrations, 348

CHAPTER II.

DEMENTIA.

Definition—Symptoms—Causes—Prognosis—Pathology—Treatment—Remedies, etc., 376

CHAPTER III.

CEREBRAL EXHAUSTION.

Brain-work and its effects—Symptoms—Causes—Treatment—Diet—Exercise—Rest—Sleep—Change—Medical Treatment—Clinical indications and illustrations, 380

CHAPTER IV.

DELIRIUM TREMENS.

Definition—Symptoms—Causes—Anatomical appearances—Pathology—Prognosis—Treatment—Confinement—Exhaustion—Blanket-bath—Medical treatment—Remedies, indications and illustrative cases, 389

A TREATISE
ON
FUNCTIONAL DISEASES OF THE
NERVOUS SYSTEM.

PART I.
PHYSIOLOGY OF THE CEREBRO-SPINAL CENTRES.

CHAPTER I.

GENERAL REMARKS ON NERVOUS DISEASES.

THE term "functional," as applied to disease, has long been used to denote simple derangement of what is known as the animal and organic functions, or actions, in contradistinction to those diseases which arise from a change in the structure or position of parts. In this sense it is very doubtful whether there is, strictly speaking, any such thing as a purely functional disease of the nervous system. The diseases so called, embracing neuralgic, spasmodic, paralytic and mental affections, are known to depend in many instances on organic or histological changes in the cerebro-spinal, or other portion of the nervous system; and it is highly probable, therefore, that all nervous diseases, even the neuralgias, are connected, either directly or indirectly, with such changes. The fact that tissue-alterations are not always discernable, is no proof to the contrary, since an abnormal irritation, even when indicative

of molecular changes, may become a normal one by persistent repetition. Indeed, such an acquired tolerance of ordinary causes of irritation, would seem to be sufficient proof of the existence of such changes. "It seems to me a vain dispute whether in strict accuracy there are, or are not, any such disorders. The probability is that there are not; that in all morbid action the cells and fibres of the organs undergo some molecular change from their perfectly normal condition. It is, however, perfectly certain that there are very grave disorders in which the most careful scrutiny fails to detect any actual change, in which complete recovery is perfectly possible, and in which the 'juvantia' are such as operate more in modifying the power of the organs than in their texture."—*C. Hanfield Jones*.

Atrophy of the nerve-tissue, first clearly demonstrated by Romberg, is a well-established fact in pathology. This subject has been most successfully studied in connection with atrophy of the optic nerve, where the amblyopic and amaurotic conditions are seen to keep pace with the pathological changes on which they depend. This form of nerve degeneration is now so frequently met with, that, as Dr. Anstie says of neuralgia, "most probably in all cases there is either atrophy, or a tendency to it, in the root of the principal nerve or in the central grey matter with which it comes in closest connection."

As we approach the great nerve-centres, the lesions become more pronounced, and the functional disturbances depending on them are therefore, as a general rule, more marked, and also more frequent. As these lesions and their effects on the nervous system have of late been carefully investigated, and, moreover, as they furnish a ready key to the solution of a great variety of functional phenomena, or what has heretofore generally been regarded as such, we shall devote a brief chapter or two to their consideration.

CHAPTER II.

FUNCTIONS OF THE CEREBRAL CORTEX AND LOBES.

We are chiefly indebted to the labors of Hitzig and Fritsch for our present knowledge of the cortical functions of the brain. These observers established, by a series of carefully conducted electrical experiments, the fact that there are true motor centres in the cerebral cortex; that the motor and sensorial centres are differently located; and that there are definite areas governing the movements of certain parts in animals, some of which, though in close contact with each other, exhibit different functions. These results are found to agree in many instances with clinical observations made within the last few years, especially those upon tumors by Dr. Petrina, the disturbances caused by superficial abscesses, and the circumscribed destruction of motor centres by cauterization of small portions of the cineritious substance with chromic acid by Nothnagel, or with the actual cautery by Ferrier. They are, however, in direct conflict with the previous investigations of Longet, who found that the hemispheres throughout their whole extent were entirely destitute of both sensibility and excitability, so that both the white and grey substance could be lacerated, burned or crushed without exciting any convulsive movement, or any apparent sensation. We shall therefore content ourselves with presenting a brief summary of their observations, merely remarking, that the loss of power caused by the destruction of nervous centres has not always proved permanent, a circumstance sought to be explained by Flouren's law of supplementary or vicarious action, or else by Niemeyer's theory of a collateral œdema, extending to the motory

centres, and causing an arterial anæmia of the opposite hemisphere.

According to Dr. Petrina, the growth of tumors, even of the *convexity*, so excites the other nervous ganglia as to give rise to isolated crossed clonic spasms, but never to perfect hemiplegia; consciousness is also mostly preserved. In these cases there is likewise long-continued headache, considerable vertigo and nervous irritability, with circumscribed disturbances of sensibility, amblyopia, and altered hearing.—*Zeitschr. f. Hom. Klin.*, 19, 77.

Hitzig, experimenting on the cortical part of the brain of an ape, the surface of which closely resembles that of man, determined the fact that, in apes at least, the motory centres for the upper and lower extremities, and also for the head, are situated in the cortex of the anterior cerebral convolution, inasmuch as electric irritation of certain points at that place causes different movements of those parts. This is apparently confirmed by an observation communicated by Hitzig in relation to an abscess in the lower half of the right central convolution, which was attended with spasm and pains in the left side of the face, showing that the point whence the irritation of the facialis takes place, is nearly the same in the ape and man, namely, that part of the anterior central convolution, whence the second frontal convolution turns forward and a little downward.—(*Arch. f. Psych.*, III, 2.)

Hitzig's observation is also confirmed by a case recorded by Dr. Carl Stark, in which a cyst was found somewhat behind the centre of the right and left first frontal convolution, and another at the root of the first right and left frontal convolution. There was also a third cyst, of the size of a walnut, on the upper part of the right sulcus præcentralis. The root of the second frontal convolution, and the lower part of the anterior central convolution were, from pressure of the cyst, greatly atrophied and only half their normal size. In this case there was progressive general paralysis, trembling of the facial muscles, and, as the paralysis of the left facialis became more and more decided, nearly all the muscles supplied by the motory branches of the trigeminus, namely, the masseter and pteri-

goides. At one time both bulbi were spasmodically rolled inwards, and in that position made short twitching movements from right to left; that is, clonic and tonic spasm of the left external rectus and of the right internal rectus.—(*Berlin. Klin. Wchschrift*, 33, 1874.)

Tumors in the anterior lobes, according to Dr. Patrina, mostly cause frontal pains, with intellectual and psychical alterations and abnormalities, and with or without partial chorea, paresis, or, more rarely, hemiplegia. There is no disturbance of sensibility, but there may be general convulsions, rarely attended with loss of consciousness; sight, smell and hearing are also disturbed.—(*Zeitschr. f. Hom. Klin.*, 19, 77.)

In a case of paresis of the right side of the body, Dr. Bernhart found the left lobe of the forehead and vertex hyperæmic, caused by many small emboli. The lobulus supra-marginalis was hyperæmic and changed in structure.—(*Arch. f. Psych.*, IV, 698.)

A tumor in the lateral part of the right vertical lobe produced, according to Bernhart, sudden and transient paresis of the left arm after an interval of apparent health. There was also spasm, slight of the left lower extremity, the left side of the face being last attacked. He also found neoplasms in the cortex of the vertical lobe, especially in the superior lateral and median part of the posterior central convolution, to produce paretic debility of the extremities of the left side, especially of the arm, and spasms of the muscles of the right side (musc. orbic. palp., corr., front., of the nose and mouth, sternocleido-mast., platysma, biceps, supin., and extensor dig., flexors of the right hand and fingers). Aneurysma at the place of union of the lower temporal convolution, he found to produce paralysis of the left hand, followed by amelioration and sudden death. The aneurysma burst, and the sudden diffuse extravasation of blood explains the sudden death.—(*Loc. cit.*)

Patrina says that tumors of the vertical lobes give rise to disturbances of sight, of cutaneous sensations and frontal headache; but the most important symptom is crossed hemiplegia, often sudden; aphasia is frequent, with left-sided disturbance of the island of Reil; convulsions general only when the tumor

is large. The same authority also found tumors of the posterior lobes to produce crossed paresis, partial paralysis of the oculo-motorius on the same side, convulsions, and disturbances of the senses, intelligence and sensibility.—(*Zeitschr. f. Hom. Klin.*, 19, 77.)

Dr. Scholz, of Bremen, details a case of cerebral abscess, attended with aphasia, paralysis of the left oculo-motorius, and left-sided hemiplegia. The abscess found its way through the sagittal suture, and was opened with a lancet. The aphasia and paralysis of the oculo-motorius proves the seat of the abscess to have been in the third left convolution. The occurrence of hemiplegia *on the same side* is accounted for by Niermeyer, in such cases, by supposing the existence of a collateral œdema, extending to the motory centres, with swelling and stasis in the capillaries of the opposite hemisphere.—(*Berlin. Klin. Wochenschrift*, 42, 1872.)

These cases appear to confirm the fact, noticed by others, that, as a general rule, lesions of the right hemisphere are more serious in their effects than lesions of the left hemisphere. Thus, it has been observed that tonic convulsions are more frequent when the right side of the brain is implicated. Paralyzed muscles generally suffer to a greater extent from failure of nutrition, when the right hemisphere is the affected part. Hysterical paralysis, conjugated deviation of the eyes, and other functional abnormalities are more common, when the right side of the brain is the seat of disease. On the other hand, the different forms of aphasia are due to disease located in the left hemisphere. Nothing is now better established than that amnesic, ataxic and agraphic aphasia are the result, in most cases, of embolism of the left middle cerebral artery, about the island of Reil, or of some injury of the left middle cerebral lobe on its lateral and inferior part.—(*Luczkiewicz*.)

This, however, is contrary to the opinion of Brown-Séquard, who says, "Injuries and lesions of the left side induce greater alterations of the mind, more especially in those faculties connected with speech, but not connected with aphasia."

Dr. Julius Feasen records a case of periodically returning hemicrania, attended with *double perceptions*; the latter phe-

nomena depending on congestion, from relaxation of the vasomotors of the affected side, attacking one hemisphere, while the other hemisphere remained normal. The double perceptions, he thinks, are caused by the incongruous function of the two hemispheres; in one hemisphere, with its normally acting function, the perception is also normal; in the other hemisphere, irritated by the afflux of blood, the perception pales; both perceptions do not become united as in the normal state, but the more imperfect one follows the perfect one, as it were, as a reminiscence; hence the double perception of the same subject.—(*Arch. f. Psych.*, IV, 547.)

It thus appears that, while there is a general agreement as to the *results* of stimulation and lesion of different portions of the cerebral cortex and lobes, there are obvious reasons for the opinions of those who contend that the effects observed are in reality due to stimulation or lesion of the medullary fibres, leading from the cineritious substance to the central ganglia, or else a more direct action upon the ganglia themselves. Eckhard has traced one of these excitable fibres for the front leg down to the corpus striatum; while MM. Lemoigne and Lussana point to the fact that *mechanical* stimulation does not excite the so-called cortical centres, and that galvanization and faradization are also generally ineffectual when the animal is fully under the influence of an anæsthetic, as well as immediately after death. This view appears to be confirmed by the fact, already mentioned, that the motor paralysis observed after destruction of the cortical centres, is neither complete nor permanent, like that which attends destruction of the lower motor centres. Dr. Brown-Séquard goes still further, and asserts, as the result of his experiments and researches, that the same symptoms may present from lesions in any part of the brain, and consequently, that there are no special or circumscribed centres in the cerebrum for any function. "Each alleged function of the brain," he says, "may remain after the destruction of what is considered its centre." He therefore concludes that the symptoms depend, not upon a direct lesion of the cerebral tissue, or of any circumscribed centre, but upon a loss or perversion of function from distant irritation.

CHAPTER III.

FUNCTIONS OF THE CEREBRAL GANGLIA.

1. *Corpora Striata*.—Notwithstanding the fact that these ganglia are situated directly in the track of the prolonged anterior fibres of the spinal cord, Longet declares that irritation of these parts does not excite the slightest convulsive movement in the muscles below. More recent experiments, however, fail to confirm this observation, for there is reason to believe that irritation of the motor tracts of the corpora striata not only excite convulsions, in some instances, but give rise to the involuntary muscular movements of tremor and chorea; minute emboli, composed chiefly of white corpuscles, having been found in these cases in the smaller vessels in this region of the brain. According to Patrina, tumors of the corpora striata produce total hemiplegia, loss of consciousness, convulsions, psychical and intellectual disturbances, tremor, chorea and amblyopia. Pressure on this part is followed with great uniformity by crossed paralysis, with facial paralysis on the injured side; sensibility, on the contrary, is not generally much impaired. Apoplectic pressure in the corpora striata produces at most secondary amaurosis.—(*Psych. Centralbl.*, No. 2, 1873.)

Faradization of these ganglia produce tonic contractions of the muscles of the face, neck, trunk and limbs. When the electrode is applied to one corpus striatum, the contractions are unilateral, with predominance of the flexors over the extensor muscles; there is also produced a condition of pleurosthotonus, the body being bent to the opposite side.

2. *Thalami Optici*.—Lesions of these parts sometimes pro-

duce general convulsions and sensory disturbances, according as the destruction is in the fibres to the optic tract or corp. genic. med.; in the one case there may be paralysis of the opticus, changes of the pupils, nystagmus and exophthalmos; in the other, vaso-motory disturbances, such as considerable differences in the temperature, cyanosis, circumscribed redness; large tumors have caused psychico-intellectual disturbance and retarded speech.—(*Patrina, loc. cit.*) The paralysis is not so great in this lesion as in that of the corpora striata, the paresis consisting more in a general weakness of the body, with less-marked facial paralysis, and diminished sensation of the corresponding side. *Sclerose en plaques* of the optic thalami produces either amblyopia or amaurosis.—(*Apostoli, loc. cit.*) According to Longet, the optic thalami have a peculiar crossed action upon the voluntary movements; for if both thalami are removed in the rabbit, the animal is still capable of standing and moving about, but if only one thalamus is removed, the animal falls immediately upon the opposite side. This want of balance, however, is probably simply due to the paresis above described.

The optic thalami are not sensibly affected by faradization. Tumors, abscesses or hemorrhage into the posterior part of the thalamus may produce hemiplegia, hemi-anæsthesia, crossed amblyopia and impaired articulation; but these symptoms are not the direct result of the lesion, but of the pressure thereby exercised upon the internal capsule of the nucleus lentiformis. Charcot and Veyssiere have shown that lesions of the anterior part of this capsule produce simple motor hemiplegia, while lesions of the posterior portion give rise to hemi-anæsthetic hemiplegia.

3. *Pedunculus Cerebri*.—According to Charcot, injury to the posterior third of the pedunculus cerebri, from thrombosis of the art. fossæ Sylvii, results in crossed paralysis and anæsthesia of the extremities, with paresis of the opposite side of the face.—(*Med. Newigk.*, May, 1877.) Tumors of this part cause high-graded vaso-motory disturbances and anomalies of temperature; early simultaneous paralysis of the oculo-motorius; palsy of the bladder; crossed paresis and disturbance of sen-

A TREATISE
ON
FUNCTIONAL DISEASES OF THE
NERVOUS SYSTEM.

PART I.
PHYSIOLOGY OF THE CEREBRO-SPINAL CENTRES.

CHAPTER I.

GENERAL REMARKS ON NERVOUS DISEASES.

THE term "functional," as applied to disease, has long been used to denote simple derangement of what is known as the animal and organic functions, or actions, in contradistinction to those diseases which arise from a change in the structure or position of parts. In this sense it is very doubtful whether there is, strictly speaking, any such thing as a purely functional disease of the nervous system. The diseases so called, embracing neuralgic, spasmodic, paralytic and mental affections, are known to depend in many instances on organic or histological changes in the cerebro-spinal, or other portion of the nervous system; and it is highly probable, therefore, that all nervous diseases, even the neuralgias, are connected, either directly or indirectly, with such changes. The fact that tissue-alterations are not always discernable, is no proof to the contrary, since an abnormal irritation, even when indicative

of molecular changes, may become a normal one by persistent repetition. Indeed, such an acquired tolerance of ordinary causes of irritation, would seem to be sufficient proof of the existence of such changes. "It seems to me a vain dispute whether in strict accuracy there are, or are not, any such disorders. The probability is that there are not; that in all morbid action the cells and fibres of the organs undergo some molecular change from their perfectly normal condition. It is, however, perfectly certain that there are very grave disorders in which the most careful scrutiny fails to detect any actual change, in which complete recovery is perfectly possible, and in which the 'juvantia' are such as operate more in modifying the power of the organs than in their texture."—*C. Hanfield Jones*.

Atrophy of the nerve-tissue, first clearly demonstrated by Romberg, is a well-established fact in pathology. This subject has been most successfully studied in connection with atrophy of the optic nerve, where the amblyopic and amaurotic conditions are seen to keep pace with the pathological changes on which they depend. This form of nerve degeneration is now so frequently met with, that, as Dr. Anstie says of neuralgia, "most probably in all cases there is either atrophy, or a tendency to it, in the root of the principal nerve or in the central grey matter with which it comes in closest connection."

As we approach the great nerve-centres, the lesions become more pronounced, and the functional disturbances depending on them are therefore, as a general rule, more marked, and also more frequent. As these lesions and their effects on the nervous system have of late been carefully investigated, and, moreover, as they furnish a ready key to the solution of a great variety of functional phenomena, or what has heretofore generally been regarded as such, we shall devote a brief chapter or two to their consideration.

CHAPTER II.

FUNCTIONS OF THE CEREBRAL CORTEX AND LOBES.

We are chiefly indebted to the labors of Hitzig and Fritsch for our present knowledge of the cortical functions of the brain. These observers established, by a series of carefully conducted electrical experiments, the fact that there are true motor centres in the cerebral cortex; that the motor and sensorial centres are differently located; and that there are definite areas governing the movements of certain parts in animals, some of which, though in close contact with each other, exhibit different functions. These results are found to agree in many instances with clinical observations made within the last few years, especially those upon tumors by Dr. Petrina, the disturbances caused by superficial abscesses, and the circumscribed destruction of motor centres by cauterization of small portions of the cineritious substance with chromic acid by Nothnagel, or with the actual cautery by Ferrier. They are, however, in direct conflict with the previous investigations of Longet, who found that the hemispheres throughout their whole extent were entirely destitute of both sensibility and excitability, so that both the white and grey substance could be lacerated, burned or crushed without exciting any convulsive movement, or any apparent sensation. We shall therefore content ourselves with presenting a brief summary of their observations, merely remarking, that the loss of power caused by the destruction of nervous centres has not always proved permanent, a circumstance sought to be explained by Flouren's law of supplementary or vicarious action, or else by Niemeyer's theory of a collateral œdema, extending to the motory

It originates in :

I.—1. The *trifacial* in teething.

2. The *pneumogastric*, in over-, or improperly-fed infants.

3. The *spinal nerves*, in constipation, intestinal disorder, or catharsis. These act through the medium of

II.— The *spinal marrow*, and

III.—1. The *inferior* or *recurrent laryngeal*, the constrictor of the larynx.

2. The *intercostals* and *diaphragmatic*, the motors of respiration."

In a similar manner, Dr. Meryon "accounts for those strange and mysterious sympathies by virtue of which the different parts of the body are maintained in a state of mutual dependence, and by means of which a disturbed condition of one organ produces impressions on the other, and, it may be, distant parts of the system. What, for instance, but this kind of affinity, can occasion the contracted brow in severe headache, the dilated nostrils in painful affections of the chest, or the raised upper lip, stretched over the gums, in great suffering of the abdomen. These, and others far more important phenomena, were interpreted by the thoughtful experiments of Dr. Marshall Hall, who first taught us that they are dependent on diffusions of excitement, not by the nerve primarily affected, which acts only as a conductor of sensation to the nervous centre, but by the nervous centre itself, on which the primary impression impinges, and from which it is reflected."—(*Pract. and Path. Research. on the Var. Forms of Paral.*)

Dr. Scheutz, of Prague, in his remarks on the etiology of infantile convulsions, speaking of meningitis basilaris, and its accompanying hydrocephalus acutus, says: "The chief seat of this exudation is on the fascicles of cellular tissue between the pia and arachnoidea inside of the both-sided hilus cerebri, from the chiasma nerv. opt. to the pons and medulla oblongata. Hence the inflammation spreads to the fossæ sylvii and the longitudinal fissure of the hemispheres, to the blood vessels and ependyma of the ventricles, especially the lateral ones,

and thus causes the acute hydrocephalus. By its extension the oculo-motorius, trochlearis, abducens, trigeminus, facialis, acusticus, glosso-pharyngeus, vagus, and accessorius Willisii are drawn in, producing the characteristic symptoms, as the position of the eye during and after the attack, the squinting, the vomiting, the cry hydrocephalique, especially the contraction of the muscles of the neck, and teaching us the deposition of exudations and of granulated tubercles around the nerves coming out from the base of the brain."

Seeligmüller describes a disease in a girl, twenty-four years old, which began a few years before with difficulty of swallowing, and ended in paralysis and atrophy of both sterno-cleido-mastoidei and cucullares; paralytic symptoms at the vellum palati and at the larynx; pulse 90 and over; there was also atrophy and paralytic weakness of the upper extremities, especially on the left side. Such a pathological state corresponds to the anatomical condition which Burchard and Heilderhain found about the course of the fibres of the internal ramus of the accessorius after its union with the vagus; and it is well known that the cucullaris and sterno-cleido-mastoideus are supplied by the ramus externus. These studies clearly show that the nervous pharyngeus contains nearly exclusively fibres of the accessorius, the nerv. laryng. sup., only a few on the ram. musc. crico-thyroidei, the nerv. laryng. inf. s. recurrens, and the rami cardineae exclusively fibres of the accessorius. Physiological experiments perfectly agree with it, as they constantly prove the dependence of the laryngeal muscles on the accessorius. The disease in question is a steadily progressing disease of the medulla oblongata and of the cervical cord, running its course slowly, from above downwards. It began in the ramus inter. of the accessorius, and finally attacked the motory nerves of the upper extremities, especially of the left side, a process allowing only the most unfavorable prognosis.—(*Arch. f. Psych.*, III., 2.)

Dr. Wernich, in giving the etiology of eclamptiform paroxysms, says:—"It is well known that during pregnancy eclamptiform convulsions may set in without any albuminuria. Schroeder reports fifty such cases in his work on Midwifery.

In two cases which came under my observation, albuminuria was also absent, and the patient complained especially about a numb sensation, prickling, at times severe pains and paralytic weakness in the lower extremities. Most authors consider its cause a pressure on the plexus ischiadicus in the pelvis.

Brown-Séquard and Westphal, in their experiments on guinea-pigs, showed that epileptiform convulsions could be produced at any time on these animals. By dividing one-half of the spinal cord or one nervous ischiaticus, and pinching the face on the same side (irritation of an epileptigonous zone), a paroxysm can be produced, which in all its points is very similar to an epileptic fit.

Other lesions of nerves produce the same effect, as Billroth and Briond have shown, and we must therefore look out for such an epileptigonous zone. Westphal demonstrated that we must make our experiments for that purpose on different parts of the body. In the case before us we have to inquire, if the sexual organs do not contain such peripheric nervous regions, by the irritation of which the vaso-motory and spasmodic centres, already morbidly affected, are put into action. Many accoucheurs report cases arising through exploration of the uterus. Heker reports a case where eclampsia set in during scarification of the labia majora. I saw one case where, in a woman who never had an epileptic fit, a well-characterized eclamptiform convulsion set in after an intro-uterine injection. We see, therefore, no reason why we may not in some cases of eclamptic fits consider such epileptogonous zones existing in the sexual organs, especially in all such cases where no albuminuria is present."—(*Berl. Klin. Wschft.*, 42, 1872.)

Finally, Dr. Apostoli refers one form of organic amblyopia and amaurosis to ataxia locomotrice and grey degeneration of the posterior columns of the spinal cord. According to the same authority, amblyopia and amaurosis sympathetica arises by reflex action, mostly from the trigeminus (neuralgia, even irritation or dentition, foreign bodies in the teeth, caries dentalis); helmenthiasis and pregnancy may also cause sympathetic amaurosis.—(*Psychl. Centrbl.*, No. 2, 1873.)

Numerous other cases of this kind might be cited, but we .

have given enough to show the various causes operating to disturb the healthy action of the nervous system, as well as afford an explanation of the mechanism by which impressions made on one part of the system may spend their force, and produce great functional disturbance, or loss of power, in another. Further illustrations, therefore, will be reserved for their appropriate place in subsequent chapters of the work.

In order to render our remarks on the physiology of the spinal cord more complete, we will add, that while the chief vaso-motor centre is situated in the medulla oblongata, there are subsidiary or minor centres throughout the whole length of the cord. The cervical portion of the cord contains a centre which appears to regulate the production of animal heat, for when this portion of the cord is crushed or deeply injured, the thermometer, after the effects of the shock have subsided, runs up to 105° F., and shortly after death frequently reaches 110° F. Budge describes the cilio-spinal centre as situated between the last cervical and sixth dorsal vertebræ. Faradization of this region produces dilatation of the pupil through the cervical sympathetic nerve, which influences the dilating fibres of the iris. On the other hand, destruction of this portion of the cord is followed by contraction of the pupil, because now the iris is under the exclusive control of its circular fibres. Schiff contends for what is called "vicarious interchange of functions" in the spinal cord. He bases his argument upon the fact, that after the spine has been injured its function is sometimes restored before the anatomical lesion has been repaired. This, however, does not apply to the posterior columns, injury to which permanently destroys the tactile sense, without possibility of recovery. Moreover, we know from abundant clinical experience, that although portions of the spinal cord may be regenerated in frogs and some of the lower animals, as shown by Brown-Séquard and others, such regeneration of tissue does not take place in man, and if recovery from severe pathological injuries ever occurs, it is extremely rare and imperfect. The chief centre for the movements of the lower sphincters is situated in the lumbar portion of the cord; but a curious cir-

cumstance is, that while relaxation of the urinary sphincter commonly occurs without relaxation of the sphincter ani, the reverse is not true. The lumbar centre, however, is not the only one for the bladder, since, as we have seen, faradization of the pedunculi cerebri and restiform bodies likewise causes contraction of the detrusor and evacuation of the viscus.—*(Althaus.)*



PART II.
DERANGEMENT OF THE MOTOR FUNCTION.

SECTION I.
SPASMODIC DISORDERS.

CHAPTER I.
CONVULSIONS.

CONVULSIONS is a word generally used to denote a condition characterized by violent spasmodic contraction of the muscles, sensibility and voluntary motion being for the time suspended. The term is applicable to both tonic and clonic spasm of the muscular tissues, but is usually confined to diseases characterized by violent involuntary contractions, with alternate relaxations of muscles which usually act only under the influence of the will. For the sake of distinction, the term *spasm* is sometimes used to designate the inordinate action of the involuntary muscles, the word "convulsions" being more particularly reserved to denote the irregular contraction of the voluntary muscles; but in ordinary language the two terms are synonymous, being commonly used to designate diseases characterized by violent alternate contractions of the voluntary muscles, attended with complete or partial loss of consciousness, and constituting the class of nervous disorders which form the subject of the present chapter.

1. INFANTILE CONVULSIONS.

For the purposes of description and study, convulsions may be divided into three distinct classes, namely, (1) those connected with disease of the brain or spinal marrow, called *centric*, or *symptomatic*; (2) those arising from peripheric irritation, such as dentition, worms, etc., called *eccentric*, or *reflex*; and (3) those depending upon the quality or quantity of the blood circulating in the system, or in some particular part, called *secondary*, or *sympathetic*.

Convulsions occur under the greatest possible variety of circumstances, as regards age, constitutional condition, sanitary surroundings, hereditary influences, or whatever else may be supposed to affect the general health of the patient. Although the disease is most common among the poorer classes, or among feeble and impoverished children, it is nevertheless often met with in well-fed infants of apparently robust constitutions and perfect health.

Causes.—The chief predisposing causes of infantile convulsions are, heredity, nervous susceptibility and general weakness.

1. *Heredity.*—An hereditary predisposition has often been observed. It is no unusual thing to find the children of epileptic parents peculiarly subject to convulsive fits. Bouchat mentions a family of ten children, all of whom had convulsions during infancy; one of them married and had ten children of his own, nine of whom were subject to convulsions.

2. *Nervous Susceptibility.*—The nervous system in infancy and childhood is peculiarly impressible, irrespective of hereditary influence. The infant organization is such that it feels more sensibly at this period the influence of disturbing causes upon it. Not only so, but some children are naturally more susceptible to the various causes of irritation, more "nervous" as we say, than others. Whether this predisposition is hereditary or acquired, cannot always be determined. Some attribute it to impressions made upon the mother during gestation; while others believe it to be the natural result of their individual organization. Whatever may be the reason, such children are more impressible than others to even ordi-

nary influences; they are unusually excitable, restless, and apt to start suddenly when spoken to, or when a noise is made in their hearing. I once knew a child, now grown to manhood, who, to use the language of the mother, was never quiet since he was born. During infancy and early childhood this boy was thrown into convulsions from the slightest cause.

3. *General Debility*.—Children naturally healthy sometimes acquire a predisposition to the disease, by being subjected to the operation of debilitating influences, such as impure air, insufficient or unwholesome diet, etc. If the state of debility thus induced can be effectually overcome, there is generally no difficulty in getting rid of the convulsions; otherwise such children remain liable to a repetition of the attacks on being exposed to any of the exciting causes of the disease.

The exciting causes are very various, and often apparently very trivial. Thus, the irritation of a feather, or the prick of a pin, may be sufficient to provoke convulsions in cases where a strong predisposition to them exists.

1. *Centric*, or *symptomatic* convulsions may result from any inflammatory or organic disease of the brain or spinal marrow, such as meningitis basilaris, with its accompanying acute hydrocephalus; tuberculosis cerebri; inflammation and softening of the brain or cord; tumors, abscesses, hemorrhagic extravasations, or any other form of cerebro-spinal traumata.

2. *Eccentric*, or *reflex* convulsions constitute the great majority of cases, particularly among children. They are due to any irritation of the peripheric nerves capable of exciting them by reflex action. Of this nature are the numerous cases arising from dentition, errors of diet, helminthiasis, burns, genito-urinary irritation, rectal croup, denudation of peripheric nerves, retention of the meconium, diarrhœa, exposure, especially to severe cold, or mechanical irritation of the skin or mucous membrane. Some of these causes are of sufficient importance to merit special attention.

(1.) *Errors in Diet*.—Under this head we include all unsuitable and indigestible forms of nourishment, whether it be the mother's milk, artificial food, or such indigestible and irritating substances as children of every age are liable to swal-

low. It is well known that the mother's milk does not always agree with the child; and Sæmmering mentions the singular case of a woman whose milk agreed perfectly with her own babe, but always caused convulsions in others. Nearly every physician of experience has met with a number of cases, in which the mother's or nurse's milk has been so changed by sudden fright or grief, as not only to disagree with the child, but in some instances to cause convulsions. A case has just occurred in my own practice, in which a nurse, on being accused by the mistress of the house with dishonesty, was thrown into such a violent fit of anger, that, for more than a week afterwards, the child on being nursed was immediately thrown into spasms.

"Artificial food," if it disagrees, is also liable to produce convulsions. This is particularly apt to be the case if the food is too rich, or difficult of digestion, and especially if the stomach is overloaded, or has become weakened by the exhibition of Soothing Syrups, Batesman's Drops, Godfrey's Cordial, paragoric, or other opiate preparations.

After weaning, children often fill their stomachs with the most unwholesome and indigestible articles, such as unripe fruit, nuts, raisins, berries, and the like, and as a consequence, some hours afterwards convulsions sometimes supervene. In these cases the offending cause is generally in the small intestine, and nothing but its removal, by copious evacuations, will re-establish the health.

(2.) *Dentition*.—In explanation of the curious fact that, while the period of the first dentition is marked with frequent convulsive attacks, the second dentition is peculiarly exempt from any such phenomena, Dr. Schuetz, of Prague, says:—"Examining the physiological process of dentition, we find that the steadily consolidating dental pulp gradually absorbs the gums covering it, but where the gum takes on a nearly cartilaginous quality, it prevents the development and the growth of the tooth outwardly; the tooth presses therefore on the pulp of the permanent tooth, which again presses on the nerves, and such a pressure may suffice in certain cases to produce painful sensations and their reflex motions in the form of convulsions.

Incisions at the edges of the gums are therefore generally recommended. By holding on to such an explanation, we easily understand why there are no convulsions in second dentition, passing off without subjective symptoms and without pain; here the new tooth produces a tergo-resorption of the root of the milk-tooth, pushing outward the rootless crown; a counter-pressure does not take place, the milk-tooth becomes loose and is easily removed. But where the milk-tooth after the absorption of the root is tightly held in its place, the permanent tooth pushes its way outward, before or behind the milk-tooth, and keeps this false position, till the milk-tooth falls out or is artificially removed." This explanation is satisfactory enough as far as it goes, but no doubt the tender age of the infant during the first dentition has much to do with its sensitiveness to reflex irritation, as we find that convulsions occur from other causes much more frequently during this period and among nervous, sensitive children, than they do at a more advanced age, or among the more quiet and phlegmatic.

(3.) *Helminthiasis*.—Although the irritation arising from the presence of intestinal worms is, as a general rule, less likely to excite convulsions than is commonly supposed, nevertheless that worms are an occasional cause of their occurrence, cannot be doubted. In these cases the concomitant symptoms of verminous irritation are always present and serve to identify the cause, even when there is no ocular proof of their existence. It is interesting to note, in such cases, how speedily the convulsions yield to the indicated remedy.

(4.) *Burns, Blisters, etc.*—Extensive denudations of peripheral nerves, whether produced by burns, blisters or other agencies, frequently cause convulsions, especially in young subjects. We often witness in the adult, under these circumstances, merely a nervous chill; but children, being as a rule much more susceptible to nervous impressions, are often thrown into convulsions by such lesions. Hence the necessity in such cases of immediately protecting the exposed surface by an artificial skin or covering.

(5.) *Genito-Urinary Irritation*.—I have lately met with two cases of convulsions in male infants, arising apparently

from undue retention of urine. The latter was passed with great difficulty, and often, when the bladder was unduly distended, dribbled away in small quantities at a time, instead of being passed in the usual manner at regular intervals. A careful investigation showed that the partial retention was the result of congenital phymosis. The convulsions ceased to return immediately after the obstruction was removed. In some of these cases the convulsions appear to arise from the irritation caused by the retention of the sebaceous secretion of the part, rather than from urinary irritation or cystic distension.

(6.) *Rectal Croup*.—Dr. Schuetz mentions two cases caused by rectal croup. "The children were taken with high fever, pains all through the colon, and discharges of bloody slime with tenesmus. Suddenly severe general convulsions set in, during which the discharges were more frequent, consisting of membranous patches of different size, mixed with green or reddish mucus and faeces. Improvement began, when urination became copious, the urine being muddy, yellowish-white, containing one-fourth albumen and numerous phosphates."

(7.) *Diarrhœa*.—This is a frequent cause of infantile convulsions. Whenever the irritation reaches a certain height, in sensitive subjects, convulsions are very apt to set in; hence they are of frequent occurrence in the summer-complaint of children, cholera infantum and enteritis. In many of these cases cerebral irritation, as evinced by sleepiness, stupor or coma, precedes the attack; but in other cases the convulsions occur without any such evidence of centric irritation, and are probably due to irritation, arising from the pathological state of the intestinal mucous membrane.

(8.) *Peculiar Causes*.—We have already mentioned the fact that convulsions may sometimes result from the retention of meconium. Brachet mentions a case which was due to a worm in the meatus auditorius; and I have recently seen reported, in one of our medical journals, a case of spasm of the throat caused by a feather in the rectum. In these, as in all other cases of mechanical irritation, the removal of the offending substance permanently subdues the disease.

3. *Sympathetic convulsions*, or those depending upon the

quantity or quality of the blood circulating in the great nervous centres, are also of frequent occurrence and often fatal. To this class belong the convulsions that so frequently usher in

(1.) *The Acute Exanthemata*.—As prodromes of the acute exanthemata, convulsions are most common in scarlatina and measles, and they occasionally occur in variola. "The convulsions most frequently appear suddenly, when the child is apparently as well as ever, or only after a short feeling of illness; they are never observed at the height of the exanthema, and sometimes after the first convulsion the eruption comes out in full bloom. Neither the severe febrile symptoms nor the high temperature of the body can be its cause, as both symptoms are absent at the appearance of convulsions and which disappear as soon as the disease localizes itself, as soon as the eruption breaks out. It is yet an hypothesis if the convulsions take the place of the chill, so often observed as the precursor of acute diseases, and it is the more questionable, as convulsions are the exceptions. Others suppose, that the appearance of convulsions depends on the quantity of the unknown agent producing the eruption, but we might reply again, that convulsions are only seen in rare cases, that most intense exanthemata appear without such forerunners and vice versa—that convulsions also happen in light cases. We suppose, that in all such cases the cause lies in a greater irritability of the nervous system."—(*Schuetz*.) Doubtless there is a greater degree of irritability than ordinary in these cases, and this will suffice to explain why the same cause fails to excite convulsions in every case of acute exanthema, but it fails to account for the cause itself. It is generally conceded that these diseases are due to the influence of some specific poison upon the system, and if so, it must spend its force, either primarily or secondarily, upon the nervous system. Now, if the irritation thus excited is sufficient to produce convulsions in the more susceptible patients, the cause, though not fully explained, is at least satisfactorily accounted for.

(2.) *Anæmia*.—This is a much more frequent cause of convulsions than is generally supposed. Most authors appear to re-

gard *hyperæmia* as the principal cause of the phenomena; but while partial congestions, especially those of the brain and spinal cord, are doubtless in some instances the immediate forerunners of convulsions, general or partial *anæmia*, on the other hand, is without doubt the prevalent condition existing at the time of the paroxysm. Thus, a distinguished pathologist, speaking of eclampsia, says: "A vascular spasm, starting from the vaso-motor center, rapidly becomes general, and produces cerebral anæmia; thus causing an obstruction to the reciprocal reactions which transpire between the blood and the brain. This circulatory disturbance gives rise to loss of consciousness and acts, on the other hand, as a powerful stimulus of the center of convulsive movements situated in the pons Varolii and medulla oblongata."—(*Rosenthal*.) Many of the cases occurring in the course of long-continued diarrhœa, cholera infantum, etc., are anæmic cases, as shown by the sunken face, pale lips, hoarse voice, cool extremities, and small and filiform pulse.

Symptoms.—In most cases the convulsions are preceded by premonitory symptoms. The child is either dull and feverish, or restless and irritable, indisposed to play, and of a cross, obstinate, and whining disposition. It frequently starts in its sleep, especially when touched, grinds its teeth together, and breathes in an unequal and irregular manner. Individual muscles become spasmodically affected; the eyes squint, or turn obliquely in their sockets, the mouth is twisted in a peculiar manner, so as to give the features a sort of sardonic look, the ankles and wrists are bent, and the thumbs are turned inward. When nursing it suddenly relinquishes the nipple, cries out without any apparent cause, and in some instances gasps for breath.

In other cases, especially when it constitutes the initiatory symptom of an acute disease, the paroxysm breaks out without any warning. The child is seized in a state of perfect health, perhaps in its sleep, or at the breaking out of an exanthema. The features become greatly distorted, the eyes stare and roll spasmodically upwards, the muscles of the face twitch and jerk irregularly, the jaws are forcibly closed, or else work in a

grinding manner, froth issues from the mouth, and the respiration is short, oppressed, and attended with a hissing sound. At the same time the body and limbs are tossed wildly about, the abdomen is distended, and the extremities flexed and rigid—the lower less so than the upper. The face is almost always more or less bloated, and of a bluish-red appearance, but sometimes it is pale, corpse-like and sunken. During the height of the convulsions there is not the least trace of consciousness or sensibility; but after the paroxysm has lasted a longer or shorter period, according to its severity, the convulsions cease, sensibility partially returns, and the child falls into a deep slumber, from which it awakes apparently fully restored.

The above sketch, though brief, is a fair picture of an ordinary attack. But the paroxysms vary very much in different cases. Sometimes the attack is so light as only to affect the muscles of the face, but generally those of the trunk and extremities soon become involved. If the attack is violent, the internal muscles also become implicated, the urine and feces being passed unconsciously. The fit varies in duration from a few seconds, in some cases, to several minutes or hours in others; sometimes lasting as long as ten or twelve hours. When convulsions usher in the eruptive fevers, there are generally no premonitory symptoms, but the attack sets in suddenly, attended with more or less evidences of fever, and often also of head trouble.

Sometimes the convulsion is partial, affecting perhaps only one side of the head, or even a single set of muscles, as those of the eye or face, or there may be only a few involuntary movements of the extremities, or of the fingers and toes. Partial convulsions may or may not be attended with rigor, momentary unconsciousness, etc. Such cases, however, should never be underrated, as they not unfrequently prove to be the precursors of very severe attacks. This is especially the case if, instead of a momentary unconsciousness, or perhaps none at all, there should be a deep comatose state, accompanied or not with convulsive twitchings in the place of convulsions, as this betokens serious disease of the brain or of its meninges.

The attack, however light, is seldom limited to a single

paroxysm. Not only does there remain a tendency to relapses, but one paroxysm generally follows another, at longer or shorter intervals, increasing or decreasing in violence according to circumstances. The whole duration of the attack varies according to the constitution, susceptibility and general condition of the patient, the influence of treatment, and other modifying circumstances; but altogether it is very indefinite.

Prognosis.—Simon attaches great importance to a large flow of urine, as announcing the termination of a prolonged attack of convulsions. With regard to general prognosis, he considers eclampsia attacks to be not serious. To give a prognosis in special cases, one must have definite facts to go upon. As a rule, convulsions at the outset of fevers are not serious, while those at the end are almost always fatal. Similarly with whooping-cough, and in all cases where the cause of the convulsions lies in the vitiation of the blood, the gravity of the prognosis increases with the close following of the convulsions one upon the other, and generally is in proportion to the intensity of the attack. Behr, on the contrary, regards the prognosis as always rather doubtful. "Age is an important consideration; the younger the patients, the more readily they succumb to the attack, more particularly infants at the breast. In hereditary cases, the prognosis is decidedly unfavorable. Convulsions setting in at the commencement of the invasion of some acute disease, are scarcely ever dangerous. On the contrary, if the convulsions set in during the course of the disease, they almost always justify the most serious apprehensions: they generally mean death. The danger is greatest in the case of robust and corpulent children."

Results.—More or less serious consequences may follow recovery, or rather partial recovery, in these cases. Behr very properly says "it is a question, in such cases, whether such permanently remaining consequences of the attack do not rather originate in some cerebral disease which was likewise the primary cause of the attack. Among such consequences we number paralysis of the muscles of the eyes, less frequently of the muscles of the back, idiocy, or only a certain degree of backwardness in the development of the mental faculties, ac-

accompanied with an unusual degree of nervous irritability." Other authors mention, as consequences of convulsions in children, chorea, chronic epilepsy, pains in the limbs, aphonia, deafness, ecchymoses, rupture of the tendons, fractures, dislocations, and even curvature of the bones; but the most common sequela is paralysis, or rather a paresis of certain muscles, especially those of the face and limbs, more particularly those of the eyes, eyelids, mouth and lower extremities; the former causing some degree of squint, and the latter an insecurity in walking or running.

Treatment.—Too much stress cannot be laid upon the importance of *removing the cause*, whenever it is possible. As we have seen, many cases depend upon a sympathy with the digestive organs, and this should be removed by selecting a nurse whose milk will better agree with the infant, or, if weaned, with such articles of diet as are known to be most suitable in such cases. In some instances, an exclusive milk diet has been found sufficient to cure the disease; and I recently treated a case where nothing was found to agree with the infant but "condensed milk." It should be borne in mind, in this connection, that food that will cause convulsions in one child may be perfectly harmless to another, and *vice versa*.

Irritation of the bowels is another prolific cause of convulsions in children. In such cases, of course, medicine will be of little avail unless specially directed to this particular point. There may be anæmia or hyperæmia of the brain, and the cerebral condition may be the *proximate* cause of the attack; but if the exciting cause be irritation of the bowels, whether in the form of diarrhœa, cholera infantum, enteritis, verminous irritation, or catarrhal congestion, nothing but the removal of the latter affection will permanently arrest the paroxysms. Nothing could seem to be plainer or more self-evident than this fact, and yet I have known physicians to prescribe *Belladonna* day in and day out in such cases, when there was no other reason for giving it than the evidence of cerebral hyperæmia (?) manifested by sleepiness, and the clinical reputation of the remedy for convulsions.

Dentition is a cause the effects of which can be ameliorated,

though not permanently removed. If fever is excited, it should be allayed by appropriate remedies, of which there is generally none better than *Gelsemium*. If vomiting occurs, and there is no watery diarrhœa, it is a suspicious cerebral symptom, and *Gelsemium* or *Belladonna* will probably do the most good; but if accompanied with a watery diarrhœa, *Ipecacuanha* or *Mercurius*, either singly or in alternation, will be the most appropriate. As for lancing the gums, though condemned by Bæhr, I have many times seen the simple and harmless operation relieve, not only the convulsive attacks, but the accompanying fever and diarrhœa. Bæhr says it may retard the liberation of the tooth in consequence of the formation of cicatrices. This is not sound reasoning. It is evident that the tooth will cut through an inelastic substance, especially if unorganized, much quicker and easier than it will through one whose elasticity or sponginess is such that it cannot yield to the cutting process until it has become stretched by the advancing tooth to its utmost limit.

What is known as "irritative fever," whether caused by worms, cold, or errors of diet, is an occasional cause of convulsions, and should be treated by the indicated remedies. In the great majority of cases, *Santonine* or *Cina*, with or without *Mercurius*, will speedily remove the fever, and with it the convulsions.

Convulsions caused by sudden denudation of peripheric nerves by burns, blisters, etc., may be relieved by immediately producing an artificial skin over the exposed surface. For this purpose, Schuetz forms a coating of coagulated albumen, by thoroughly pencilling the broken surface with a saturated solution of *Argentum nitratum*. We have found nothing better for this purpose than an application of equal parts of collodion and castor oil. This forms an impermeable and elastic covering that is not apt to crack, and is very suitable for small surfaces. If, however, the trauma is very extensive, it is better to use carbolated vasoline and cotton wool, in the usual manner of treating burns, as it will be likely to occasion less shock to the system.

Convulsions arising from the irritation excited by the pres-

ence of foreign bodies, as in the case of a worm in the meatus auditorius, or of a feather in the rectum, will require, of course, the immediate removal of the offending substance. Sometimes this will be nothing more than a stray pin from the child's clothing, or crude ingesta in some portion of the *prima viæ*.

During the paroxysm, all the clothing liable to compress vital parts, such as the neck and chest, should be loosened, and plenty of fresh air admitted into the room. If dentition, cerebral congestion, or irritation of the intestinal mucous membrane, is the exciting cause, a warm bath, at a temperature of about 98° Fahr., may be at once administered, as it tends powerfully to draw the blood away from the affected parts, and also to relieve the brain. But if the convulsions coincide with the eruptive stage of an exanthema, and especially if the blood be very impure, as in malignant scarlatina, this will be found to be a very hazardous experiment, as I have never known it under such circumstances to be successful. In these cases the eruption has been found upon the surfaces of the cerebro-spinal meninges, and a more powerful agent, such as ice to the spine and head, is required to dislodge it. In ordinary cases, however, it is sufficient to cool the head by the application of a damp cloth frequently changed.

Prophylactic Treatment.—Mothers and nurses should guard against becoming violently excited or over-heated, as at such times the milk is very unsuitable for the child, and even poisonous. Too frequent nursing or feeding is also deleterious, especially at night. The mother should therefore guard against this, by laying a proper restraint upon the child's desires, accustoming it to regular hours, not only in the matter of feeding, but in everything calculated to have an injurious effect upon the nervous system. Hence, very young children should never be rocked violently in a cradle, or jerked about in the nurse's arms, but should be allowed to remain as much as possible in a quiet recumbent position, until the muscular system is sufficiently developed to bear the strain of a more erect position. Of course, it is not only right, but de-

sirable, to endeavor to harden the system within reasonable bounds, but this should be done with the greatest possible care, especially if there is any predisposition to the disease. Above all things, the character and amount of clothing should be carefully regulated, so that the child may always be comfortably clothed, without ever becoming over-heated on the one hand, or the temperature too much lowered on the other; especially should the child's head not be allowed to become too warm by an excess, or the feet too cold by a deficiency of covering.

Medical Treatment.—*Belladonna*.—Most physicians look upon this remedy as a specific in infantile convulsions, especially when accompanied with cerebral congestion. Bæhr says "it is without doubt the main remedy for eclampsia; most cases will be found to come within the curative range of this drug. It is particularly indicated in the case of robust and corpulent children with unmistakable symptoms of cerebral congestion. The symptoms of eclampsia occur in almost every case of poisoning with *Belladonna*, and demonstrate with remarkable accuracy the truth of the principle of similarity as a therapeutic maxim; for it will seldom happen that a second attack of convulsions will occur after the administration of *Belladonna*."

Illustration. 1.—Patient, æt. 6, had the measles for three days. Has now fright; wild delirium; sees visions; talks; tosses about; springs up in bed; has not slept for three nights; great prostration. *Rhus*³, every two hours. Afternoon, better, evening, worse. Furious delirium; rage; strikes; his father could scarcely hold him, and shortly he went into a spasm. *Belladonna*²⁰⁰, and in half an hour the child slept; better next day.—*Dr. J. R. Temple*.

Illus. 2.—This case had a previous history. About a year ago I was called to see a little girl, about 6 years old, who was in a severe general convulsion, which lasted three hours. Prescribed *Belladonna*³⁰. She remained unconscious all night, but next day was conscious, and got well gradually. I learned that the convulsion came on with severe headache, which was accompanied with constant gagging and swallowing, as

though there was something in the throat that needed removing. March 19, 1877, I was called to see the same child, who presented the same symptoms, with the addition of throbbing carotids and flushed face. The child seemed stupid, and it was with difficulty that she could be induced to answer questions, and when she did it was with a jerk. These symptoms, together with our previous experience, led us to expect another spasm. I gave six pellets from the same vial of *Belladonna*, on her tongue, and sat by her for a half hour. This was all she needed. Before the end of the half hour she opened her eyes and told me that her head felt better, and she wished to sit up. There was diminished throbbing of the carotids, and less flush on the face. She got no more medicine.—*Dr. C. W. Boyce.*

Gelsemium.—This remedy is equal to *Belladonna* in most cases. The symptoms specially calling for it, are:—Much nervous excitement, or else a stupid comatose condition, from which the child is aroused with difficulty; pain, often severe, in the back of the head and neck; cerebral hyperæmia during dentition; child constantly boring its head into the pillow; cramps and spasm of the extremities, or of individual muscles; enuresis at night, from weakness of the sphincter.

Illus. 3.—October 8th, 1870, was hastily summoned to Mrs. N's infant, aged eight months. Child had already had three convulsions in rapid succession. Cause, irritation of teething. Child lay in a deep stupor; had passed fæces and urine unconsciously; occasional twitches of the flexor muscles of the fingers and toes; head hot, face pale, and extremities cold. Prescribed *Gelsemium*, 1x dil., fifteen drops in half a glass of water, one teaspoonful every half hour, until consciousness should return, then every three hours only. Child had no more convulsions.—*Hart.*

Illus. 4.—Called from church to see Mrs. W's child, aged eighteen months. Convulsions appeared to originate in cerebral congestion. Tendency inherited. Child was very much excited; would strike at and attempt to bite its mother; pupils somewhat contracted; eyes staring; head hot and face flushed; gave *Gelsemium* as in previous case with the most satisfactory

results. Recommended the mother to keep the medicine on hand, and to give it whenever there were any premonitory symptoms of convulsions. She has since informed me that a single drop of the medicine (1x dil.) has always been sufficient to allay them.—*Idem*.

Opium.—This remedy is indicated when the convulsions are caused by fright, or when accompanied by trembling of the body and limbs, tossing of the arms and legs, and shrill cries; also when there is lethargy with loss of consciousness, heavy breathing, and accelerated but feeble pulse; also when there is distension of the abdomen, difficult micturition and constipation.

Illus. 5.—I was called about midnight to see a male child, about twenty months old, who, as far as parental knowledge extended, was quite well until near midnight, when the child waked up, apparently frightened, crying and screaming, at the full extent of its lungs; absolutely refusing all consolatory measures, and finally spasms broke forth in the midst of extreme tossing and restlessness. It jerked from head to foot, and threw its head back as far as possible, with upturned eyes, open mouth and quivering chin; legs and arms spread. This spasm was over when I reached the bedside. The child went from spasm to sleep; or rather, the spasm terminated in sleep—a heavy, guttural breathing, with an occasional, prolonged sigh; tremulous limbs, hard abdomen, and feeble, quick pulse, were the most prominent features present. After a half hour of this tiresome sleep, the child roused, screaming, tossing and trembling of head and limbs, with short, sudden jerks of the flexor muscles, and lapsed at once into a hard, irregularly developed spasm, with all the characteristics of the first. I at once gave *Opium*, 30th dil., every ten minutes. The spasm was a short one, sleep natural, and the babe recovered without any more spasms.—*Dr. O. P. Baer*.

Calcareæ.—Convulsions occurring in scrofulous children, especially when there are great disturbances of the circulation, congestion of blood to the head, hands and feet go to sleep, bloated abdomen, white constipated stools, excessive peevishness, great muscular weakness, and frequent trembling of the limbs.

Illus. 6.—Convulsions of little boy with light complexion and blue eyes; stools white as chalk; belly like a big pumpkin; croupy. Prescribed *Calcareo carb.*²⁰⁰; no more convulsions.—*Dr. Hawley.*

Camphor brom.—This remedy is particularly indicated in cases where there is a condition of cerebral anæmia, as in cholera infantum. Dr. Hammond recommends it for infantile convulsions due to the irritation of teething. He gives it in one grain doses every hour. Two children, aged respectively fifteen and eighteen months, required, one of them three, and the other but two doses, to effect a cure. It is especially serviceable in cases occurring in the course of cholera infantum.

Illus. 7.—R. R., æt. 15 months, vomiting of milk and drinks; temperature 105°; pulse 168; copious, watery, odorless evacuations, sixty within 24 hours; skin on thighs hung wrinkled and loose; constant unquenchable thirst; rolling of head; coma vigil; has had two severe spasms. *Camphor brom.*, 1st x, 1 gr. every fifteen minutes till improvement. Improvement slight in 24 hours, but quite marked in 48 hours, going on to good recovery. Have observed that "odorless dejections," in cholera infantum, constitute a sign to be dreaded. This attack yielded slowly—but yielded.—*Dr. H. W. Taylor.*

Illus. 8.—O. W., æt. 11 months, has had twenty spasms; has one about every twenty minutes; pulse indistinguishable; pupils dilated; great heat of head; vomits before, or immediately after, each convulsion. Had been having thirty dejections per diem; bowels now locked with opium. *Camphor brom.*, 1st x, 1 gr. every ten minutes until convulsions cease, then once per hour. Better in twelve hours; recovery complete in three days.—*Idem.*

Physostigma.—I have used this new remedy successfully in some cases of reflex irritation of the spinal nerves, especially when preceded by twitching and trembling of the muscles, dizziness, and great weakness of the lower extremities.

Illus. 9.—Mrs. R's. child, æt. 3, was noticed, a day or two previous to being seized with convulsions, to frequently stumble and fall; the body and limbs trembled at times as though he was affected with a chill; the extremities, however,

were warm and the head cool; suddenly the child was seized with a violent convulsion, at first of a prolonged tonic character, then clonic; the spasms following each other in rapid succession. The distortion of the limbs during the paroxysms, which lasted from half an hour to nearly two hours, were fearful to behold, while the rapid action of the facial muscles gave to the little patient a truly frightful look. After trying several remedies in vain, including *Belladonna*, *Gelsemium*, and *Santonin*, I gave *Physostigma*, 2 x dil., with complete success. The severity of the paroxysms, if not the exciting cause of the whole trouble, in this case, was probably *Vermifuge*, a whole bottle of which, in divided doses, had been given to the child by the father, under the mistaken notion that the premonitory symptoms were due to worms. No worms were passed at any time, and it is not likely that the child had any.—*Hart*.

Glonoine.—This remedy bears considerable analogy in its symptoms to *Belladonna*. It is indicated in cases of chronic cerebral congestion and inflammation, especially if attended with a greatly increased action of the heart and arteries, nervous palpitations, and a rush of blood to the head, accompanied with nausea and vomiting, dizziness and oppression of breathing.

Illus. 10.—An infant, æt. 6 months, bowels loose from its birth; color of dejections sometimes yellow, white and undigested, or green; first had a convulsion about midnight, in the month of June, lasting an hour. Two weeks afterwards she had another, lasting from ten in the morning until midnight. Skin hot, face flushed, head drawn back; convulsions only of left side; eyes drawn towards the left side. Next day the left arm was found to be paralyzed. Two weeks after this convulsions set in again, more severe than the first, and lasted nearly twelve hours. This time the convulsions were general. The symptoms were the same as at first, with the addition of fainting spells, accompanied with great difficulty of respiration. Two or three weeks after this she had another attack, less severe, and preceded by waterbrash. The spasms now became less severe, but more frequent, recurring with unvarying regularity every eighth day. At the time of making this

report, four months had elapsed since the first attack. Although not cured, there were marked indications of improvement. The general health was much better, and the attacks had become gradually lighter, though still retaining the same characteristics, namely, waterbrash, preceding and accompanying spasms, and the periodical return. At present she is taking, with marked benefit, *Glonoine*,³⁰ three times a day.—*Dr. J. W. Vance.*

Veratrum vir.—This is a very valuable remedy in many symptomatic cases, especially when accompanied with high fever, or when secondary to pneumonia or cerebro-spinal meningitis.

Illus. 11.—A boy, æt. 4½, had for several days a croupy cough, and at night considerable fever. The cough yielded to Phosphorus, but the feverish state increased until it became nearly or quite a continuous one; tongue coated white; urine scanty; bowels irregular, and pulse 160 to 170. About six days after the attack, he had in the evening a very violent convulsion, which lasted about fifteen minutes, with considerable insensibility for an hour afterwards; after this had passed off mostly, the fever began to increase very rapidly, and in four hours the pulse ran into a flutter, and the respiration had increased to 76 per minute. I determined to try *Veratrum vir.*, which I prepared at the rate of six drops fluid extract to one-half tumbler of water, dose one teaspoonful, repeated every hour; in three hours he was asleep, and in the morning quite comfortable and wanted to eat. Continued the medicine from one to three hours during the two following days. He has had no fever since the night in which he had the convulsions, which were decidedly epileptiform. He has made a good convalescence, and is now quite well.—*Dr. M. Tinker.*

We might mention many other remedies that have been recommended for this disease, but if, in any case, these do not suffice, or do not cover the characteristic symptoms, it is better to carefully study up the case, and thus find the homœopathically indicated remedy, than to depend upon such as may be selected empirically, even though they have received the endorsement of eminent physicians, as this is the only course which will be likely to insure satisfactory results.

In bringing our remarks on this important subject to a close, we will simply add, that M. Favez practices compression of the carotids successfully in these cases. When the right side is affected he compresses the left carotid, and *vice versa*.

2. CONVULSIONS OF THE NEW-BORN.

Eclampsia Neonatorum.

This is a very rare disease in this climate; it is also very fatal. I have met with only two cases of it in a practice of nearly thirty years; one of them recovered and the other died. Schuetz, who says it is always caused by a diseased state of the central nervous system, encountered the disease nine times in 2500 infants. Dr. Collins, of the Dublin Lying-in Hospital, treated thirty-seven cases, out of 16,654 infants born. On the other hand, Dr. Underwood states that it occurred only once in the British Lying-in Hospital in many years. It is, however, of fearful frequency on the rice plantations in the South, where large numbers of negro infants are destroyed by it; but the white children there are said to be as exempt from its attack as in any other locality.

Causes —The disease very rarely occurs among infants that are kept dry and clean, in a pure and salubrious atmosphere, and with comfortable surroundings. The chief exciting cause, doubtless, is impure air, which, by gradually inducing a state of mephitism, so poisons the blood as to oppress the brain already weakened in most cases by cerebral hemorrhage, and, by irritating the nervous centres, gives rise to convulsions. As remarked by Schuetz, the *true* cause of these convulsions is still unknown. At one time they were supposed to be due to inflammation and ulceration of the umbilicus; but out of the nine cases mentioned by Schuetz, there were only two in which phlebitis umbilicale could be considered the cause. This author, who found hæmorrhages six times in the cavity of the skull and twice in that of the spinal cord, surmises that when by some unknown causes hæmorrhages occur in either of these cavities, and produce sufficient pressure on certain nervous parts, reflex manifestations and involuntary motions will follow, attacking larger or smaller complexes of muscles—in

other words, producing general or partial convulsions. Thus, he says, we can also explain how other symptoms appear in cerebral hemorrhage, than in that of the spinal cord; in the former we witness increased temperature of the head, distention of the facial muscles, the "*crie hydrocephalique*," so well described by Coindet, erections of the penis; in the latter, opisthotonus, contractions of the extremities, with concussions, and after awhile increased temperature of the head; the pulse could not be counted in any case, urine and stool rare, symptoms in common to all convulsions.

Symptoms.—The convulsions generally set in a few days after birth; it is very rare for them to occur so late as the twelfth day, and when they do, the post-mortem shows that the hemorrhage happened several days before. They have been known to occur as early as the second day after birth, but the usual period is on or about the fifth day. Sometimes the spasms are preceded by certain premonitory symptoms, such as starting in the sleep, twisting of the limbs when awake, loud and persistent whining and crying, pursing up of the lips, livid circles about the eyes, involuntary smiling, such as frequently occurs during sleep in light attacks of colic, sudden changes of color, and the hydrocephalic shriek. In other cases they occur without any warning whatever, the infants being seized with violent contractions and relaxations of certain muscles, particularly those of the extremities and face. In some, the spasmodic action is intense; the facial muscles are greatly distorted, the little patient foams at the mouth, the jaws are locked, the face and other parts of the body are of a livid hue, the penis is erected, and the thumbs are tightly imbedded in the palms. These cases, which generally depend upon cerebral hemorrhage, are of the most acute character, and death may take place after the first paroxysm. They seldom last more than from eight to thirty hours, or at most about forty hours, before the powers of life fail, and the little patient sinks, completely exhausted and overpowered by the violence of the attack. In milder cases, the convulsive movements are less violent, the paroxysms are less frequent, and although the attacks are more prolonged, lasting from three to ten days, the

ability to nurse is at no time entirely lost. The paroxysms may follow each other in rapid succession, or they may be suspended for several hours; in either case the patient remains soporose for some time after the fit, refuses the breast, and has more or less difficulty in swallowing.

Prognosis and treatment.—The prognosis is extremely unfavorable. Schuetz says he never saw any case recover when the new-born babe suffered from true convulsions. Most old-school authors bear similar testimony on the subject. On the contrary, Drs. Breen, Graves, Chalmers, and others, have had one or two cases each to recover under their care; but all are agreed as to the exceeding fatality of the disease. As before mentioned, one case, out of two that occurred in my hands, recovered under homœopathic treatment. In this instance, I gave *Belladonna*³ and *Arnica*³⁰ every hour, alternately, until the convulsions and the soporose condition disappeared, which they did on the sixth day (the babe having been attacked on the fifth). I then omitted the *Belladonna*, but continued the *Arnica*, at longer and longer intervals, for a period of several weeks. This treatment was based upon the supposition that the convulsions were caused by cerebral hemorrhage. Of course, as there was no positive proof of any extravasation of blood within the cranium, the treatment was somewhat empirical; but as it had a well-grounded pathological basis, and was withal successful, I think we are justified in giving it a fair trial in all such cases.

3. CONVULSIONS OF ADULTS.

Convulsions of grown-up persons are divided into two classes, puerperal and non-puerperal. The former class comprises such as have some connection, either near or remote, with the puerperal state; the latter, as the name indicates, includes all other varieties.

(1). PUERPERAL CONVULSIONS.

Eclampsia Gravidarum et Parturientium.

Puerperal convulsions, properly so called, are always connected more or less closely with the puerperal state; never-

theless they occur at very different periods, and under a great variety of circumstances.

1. *During Pregnancy.*—The disease is said never to occur during the first two or three months of gestation, and very rarely at an earlier period than the eighth or ninth month; I have met with it twice, however, as early as the sixth month. But as one of the women had an epileptic mother, and the mother of the other, besides being of a very nervous temperament, had puerperal convulsions at the ninth month—they may, I think, justly be considered as having inherited a predisposition to the disease. Such predisposition, however, is not generally admitted to exist in these cases; and it must be confessed that, as a general rule, the constitution does not appear to exert any peculiar influence in this disease; though strong, full-blooded individuals seem to be more liable to it than those of an opposite character.

Velpéau says that all causes of abortion may bring on eclampsia. This is no doubt true. We have already seen (*Part I, Chap. IV*) that the uterus belongs to a convulsive zone; and there is reason to believe that even the menstrual molimen may become a cause of convulsions among certain women. Baudelocque speaks of a woman whose attacks always corresponded to a menstrual period; and Velpéau says he has often proved the fact, previously noted by Cheussier, that the painful trembling of the uterus, so often observed in the last two months of pregnancy, especially at the monthly periods, is frequently accompanied by the precursory symptoms of eclampsia.

2. *During Labor.*—The great majority of cases occur during labor, the dilating pains and first uterine contractions especially predisposing to them. In these cases, the irritation is supposed to be transmitted directly from the uterus to the spinal cord by the intermediate hypogastric nerves, or else by means of an epileptic zone through the brain. But it is not probable that such irritation would be sufficient to provoke convulsions, unless there was already existing, either a highly excited, or else a greatly depressed condition of the nervous centres. Now it was long ago observed that an œdematous condition was generally associated with these cases, but albu-

minuria as an etiological cause has more recently been pointed out. In most cases, albuminuria is present long before the convulsions set in, with œdema of the genitals and lower extremities; the inference, therefore, is that the convulsions are caused by ammoniæmia (*Schuetz*). But when we take into consideration the fact that, in some cases, not a trace of albumen can be detected in the urine; and also that pregnancy frequently runs its entire course in a normal manner, when suddenly convulsions occur without any apparent cause, we must still regard their etiology as more or less obscure and uncertain.

3. *After Labor*.—Convulsions may also occur immediately at the termination of, or soon after delivery. Sometimes they are excited by post-partem hemorrhages, by the retention of portions of the placenta, by inversion of the womb, or by nervous shock occasioned by a too speedy delivery. A more important factor in their production, however, met with in some cases, is the presence of one or more cerebral clots. Numerous small extravasations of blood have been met with in the optic thalamas and corpus striatum, especially after severe labors. This will account, perhaps, for the fact, that the largest number of cases are found among the primiparæ. Such lesions may, indeed, be an effect instead of a cause; but when the convulsions occur immediately after the termination of very severe and protracted labors, it is reasonable to infer that the relation they sustain to them is a causal one.

Causes.—We see from the above facts, that it would be unsafe to adopt the partial views of Spiegeberg and Heidenhain, that "the phenomena are due to the poisoning effect of blood surcharged with urea or carbonate of ammonia, or the opinions of Kiwisch, Scanzoni and others, who regard the convulsions as due to the mechanical irritation of the pelvic nerves, produced by pregnancy and parturition," but to a variety of factors, the most important of which have been given by Dr. Mac Donald, as follows:

1. *Predisposing*.—Special weakness in the nervous system, either congenital or acquired by depressing circumstances, and possibly also aggravated by impaired nutritive cerebral

changes through an imperfectly depurated blood arising from diseased kidneys.

2. *Efficient*.—In addition to the above, anæmia of the cerebral motor-centres, induced in the manner in which Traube and Rosenstein explain its production, which is under conditions most favorable for its causation, if it does not take place only when the blood is increased in bulk, and rendered hydræmic by the co-existence of kidney disease in some of its forms.

3. *Exceptional*.—But in certain cases where no kidney disease is present, it is difficult to see how the mechanical conditions required by the above theory can be obtained, and these are naturally explained by the theory of reflex spasm of the cerebral arteries, induced by irritation traveling from the uterus centripetally to the great motor-centres of the brain in the manner in which Cohen explains the origin of his eclampsia uteri matura. In this case, also, we need to predicate the existence of specially predisposing causes affecting injuriously the nervous system of the mother.

The operation of these causes will be explained more at length in the section on non-puerperal convulsions. (See § 4.)

Symptoms.—Puerperal convulsions are frequently, but not as a rule, ushered in by certain precursory symptoms, such as a dull, heavy headache, with more or less drowsiness, mental hebetude, impairment of the special senses, full slow pulse, and a flushed face; these symptoms are sometimes followed by sudden sharp pains in the head, ringing in the ears, flashes of light before the eyes, transitory blindness, pain and oppression of the stomach, and a sensation of impending danger. Sometimes, however, there is no such warning; and unless albumen and fibrinous coagula are previously found in the urine, there may be no apparent evidence of approaching convulsions. In whichever way it commences, the paroxysm resembles in many respects an attack of epilepsy. The muscles of the face twitch and work spasmodically, producing great distortion of the features, the bulbi are fixed, or roll in every direction, the pupils are dilated and immovable, the tongue is protruded, foam collects at the mouth, and a deep hissing noise is made by breathing through the closed teeth. Soon the

spasms extend to the neck and upper extremities, which jerk and tremble, the lower limbs remaining for the most part rigid and stationary. After a longer or shorter period, according to the severity of the fit, the patient sinks into a stupor, from which, after an uncertain interval, she may suddenly awake apparently well and wholly unconscious of her previous condition. The paroxysms are generally more and more severe at each repetition, the respiration becoming increasingly impeded and irregular, so as at times to be even temporarily suspended, and the heart's action labored and uneven, the pulse being feeble, intermitting and occasionally lost. In these cases consciousness returns only gradually and the paroxysms are of longer duration, sometimes lasting two or three days. Cerebral hemorrhage occasionally follows such attacks, and then the comatose state may continue until death puts an end to the scene.

Prognosis—The prognosis is always doubtful and should therefore be guarded. In some cases the convulsions cease immediately after the birth of the child and do not return; in other cases delivery, whether natural or artificial, seems to have no beneficial effect upon them. As a general rule, however, the danger to life is diminished in proportion to the lateness of the attack, the chances of recovery being greater the more speedily the patient is delivered after the convulsions set in. Death seldom occurs during the paroxysm, unless caused by cerebral hemorrhage, or by acute pulmonary œdema. The remote consequences are: insanity, dementia, loss or impairment of the special senses, muscular contractions and paralysis. The prognosis, so far as the fœtus is concerned, is still worse. It is estimated that at least fifty per cent. of those born in the midst of convulsions, diè, and that a still higher rate of infant mortality attends serious convulsions in pregnant women.

Treatment.—This will depend, to some extent, upon the period when the convulsions occur. If they take place during pregnancy, the tendency is to excite uterine contractions and produce abortion or miscarriage. In some of these cases the threatened danger may be averted and the convulsions subdued by the prompt administration of the indicated remedy;

but as a general rule, the quicker the womb is emptied of its contents the better. The same is true if the convulsions occur at the commencement of parturition, for then the process is considerably delayed by them; but if they happen towards the end of labor, artificial delivery is seldom necessary, as the expulsion of the fœtus is usually sufficiently hastened by the accident itself. If the convulsions occur after labor, the uterine contractions are generally arrested, which may lead to the retention of portions of the placenta; and as the convulsions never entirely cease so long as any of the contents of the womb remain in the uterine cavity, their speedy removal becomes a matter of the highest importance. Moreover, their retention is liable to produce puerperal inflammation and fever, metrorrhagia and other disastrous consequences.

The remedies most frequently indicated in this disease are: *Aconite*, *Belladonna*, *Chamomilla*, *Coffea*, *Cuprum*, *Gelsemium*, *Hyoscyamus*, *Ignatia*, *Kali brom.*, *Opium*, *Stramonium*, *Veratrum viride*.

Belladonna.—Belladonna justly stands at the head of the list as an anti-convulsive remedy. Its action, says Bæhr, is not only similar to a paroxysm of eclampsia, but it has, moreover, a special affinity to the condition of a parturient female. It is specially indicated in cases where there is deep redness of the face, staring and glassy eyes, dilated pupils, great restlessness and tossing about, moaning respiration, opisthotonus, stupor, insensibility, and involuntary discharge of urine.

Illus. 12.—Convulsions during labor, in a stout woman; no spasm during uterine contractions, but shortly afterwards, with labor pains during the intervals. The paroxysms were characterized by a warm, moist skin, congestion to the head and face, eyes distorted, pupils greatly dilated, opisthotonus, and violent clonic spasms, accompanied with trembling and shuddering; convulsions followed by coma; the spasm lasted five minutes. Prescribed *Belladonna*²⁰⁰. No return of convulsions for an hour; child born in two hours; only one more severe spasm.—*Dr. O. P. Baer*.

Illus. 13.—Convulsions before and after labor; spasms return every ten minutes; delivery instrumental; patient unconscious

during the intervals, or else delirious, swearing and using obscene language. Prescribed *Belladonna*². Relief gradual, condition lasting about a week.—*Dr. R. B. Bush.*

Cuprum.—This remedy is indicated in cases arising from cerebral anæmia, particularly if the convulsive state continues during the intervals between the paroxysms, which follow each other in rapid succession, are of a clonic character, and attended or followed by cramps of the extremities.

Illus. 14.—Mrs. —, during third pregnancy, between the seventh and eighth month of gestation, was attacked with convulsions. Spasms were of a clonic character, and appeared to commence in the stomach. During the attack the patient was totally unconscious, and between the different paroxysms very restless, with cramps in limbs, etc. *Cuprum met.*³ quickly controlled the trouble, and patient went on to the full term with safe deliverance.—*Dr. Geo. M. Ockford.*

Gelsemium.—The indications are: great nervous excitement; excessive irritability of both mind and body; mental derangements with great vascular excitement; delirium, attended with congestion of the brain; also in dull, stupid and comatose states.

Illus. 15.—Violent convulsions in a young woman of highly nervous temperament, seven months pregnant with her first child; spasms frequently repeated, and soon followed by complete unconsciousness and the wildest delirium. After continuing in this state for about two days, she was delivered of a dead fœtus. The convulsions now ceased, but she remained in a state of wild delirium, incessantly talking, and without a moment's sleep for three days and nights. *Aconite* successfully controlled the arterial action, which was inclined to be excessive, but *Gelsemium*, 3d dil., three drops in half a tumbler of water, was the only remedy found capable of subduing the delirium and procuring sleep.—*Dr. J. S. Douglass.*

Illus. 16.—Mrs. — (colored), during gestation had frequent spasms, accompanied with violent opisthotonus and vomiting; the spasms were of a tonic character, with gradual relaxation. After an attack of headache, soreness of flesh and debility, *Gelsemium*⁴ prevented further attacks, and delivery occurred

at full term. The child subsequently died of trismus nascentium (*eclampsia neonatorum*).—*Dr. G. M. Ockford.*

Kali bromatum.—This is an admirable remedy in many cases of puerperal convulsions, particularly when there is great determination of blood to the brain, with red and bloated face, wild delirium, dilated pupils, head hot, eyeballs turned up or moving in every direction, spasmodic twitchings of the muscles, and tendency to coma; also when convulsive movements occur during pregnancy and at or near the menses.

Illus. 17.—Mrs. C., a stout, plethoric woman, confined with her first child, was seized with violent convulsions during the last stage of labor. The child, a healthy male infant, was born soon after the paroxysm set in, which lasted about eight minutes. The placenta immediately followed the child, and the patient seemed to be doing well, when, after an interval of about half an hour, she was seized with another and more severe spasm, which lasted twenty minutes. I now ordered *Belladonna*³⁰ to be given after every paroxysm. The convulsions continued to recur, at intervals varying from half an hour to three hours, for three days and nights, at which time the patient was greatly exhausted, and apparently sinking. Alarmed for the result, I determined to try *Kali bromatum*, and prescribed ten grains every half hour until the paroxysms should cease. The patient, after taking eight or ten doses in this manner during the intervals, became less delirious and more quiet, the pulse became firmer and more regular, and a natural sleep succeeded to the comatose condition which followed the last paroxysm; but as the convulsions continued to recur, though in a milder form and at longer intervals, I ordered the continuance of the remedy by enema, fifteen grains to be given every half hour in two ounces of cold starch. This treatment proved successful; the spasms gradually became milder and more distant, and on the evening of the fifth day they entirely ceased. The patient made a good but slow recovery, having had in all upwards of seventy convulsions.—*Hart.*

Stramonium.—This remedy is more especially indicated in cases where clonic and tonic spasms occur in frequent alterna-

tion; where the heat and turgescence are considerable; and where the increase of temperature affects the whole body instead of the head, the skin being hot and dry, the eyes sparkling, and the circulation greatly accelerated.

Illus. 18.—Mrs. S., æt. 23, was confined March 1st; labor perfectly normal, terminating in about eight hours from the commencement. Shortly after I left, the old midwife, disregarding my injunctions, gave the woman a pint of soup; then she got her up and changed her clothes throughout, and before she retired, served her to another pint of soup! Half an hour afterwards my patient was in the midst of a convulsion. I found the secretions all suppressed, skin hot and dry, pulse short and quick (130), face red and bloated, eyes sparkling and projecting, with frothing at the mouth, limbs convulsed, head drawn backwards. This lasted about half an hour before she became conscious. After fruitless attempts to excite vomiting, I gave *Aconite*, *Belladonna* and *Veratrum viride*, in succession, without benefit. The convulsions continued to return about every half hour, and continually increased in severity. I now gave *Stramonium*, ten drops in a glass half full of water, every fifteen minutes during the intervals between the spasms. Next morning found that she had had but two convulsions since she commenced taking the *Stramonium*. Continued the remedy until they were entirely controlled.—Dr. E. B. Graham.

(2). NON-PUERPERAL CONVULSIONS.

Under this head are included all convulsive affections of grown-up persons, except those that occur in connection with pregnancy and parturition—namely, epilepsy, hystero-epilepsy, eclampsia toxica, and the convulsions caused by other diseases and morbid states. The first two of these are of sufficient importance to be treated separately; the latter, owing to the comparative rarity of their occurrence, will be noticed very briefly in the present section.

1. *Uræmic Convulsions*.—These sometimes occur, as we have already seen, during the act of parturition, or in the last stage of pregnancy, in consequence of the excretion of urine being obstructed by pressure of the gravid uterus upon the ureters

and bladder. Dr. Hempel mentions a case of this kind which occurred immediately after confinement, the bladder having lost its contractile power from prolonged distension. The patient was relieved by the application of cold compresses to the hypogastric region, which had the effect of producing contraction of the overdistended organ, and the violent expulsion of the pent-up urine.

Uræmic convulsions occasionally occur in the course of scarlatina, in consequence of pseudo-membranous nephritis resulting in a sudden obstruction of the urinary passages with croupous exudation. They may also be caused by obstructions in the secretion of urine from an intense congestion of the kidneys, from an extensive infiltration of the renal canals in Bright's disease, or from any form of organic degeneration of the kidneys. In other cases they result from a re-absorption of the urine in consequence of its effusion into the cellular tissue. In whatever way the poison may be introduced into the blood, the first signs of uræmic intoxication usually consist in vomiting, or in vomiting and diarrhœa, sometimes in headache and vomiting, or in drowsiness, weakness of vision and mild delirium; at other times, convulsions and blindness set in at once, without any previous warning, followed by uræmia of the most intense character. In these cases the breath of the patient often has an ammoniacal odor, or contains traces of ammonia. The worst cases are those in which the urine is decomposed, and the blood becomes surcharged with carbonate of ammonia, in consequence of retention, stagnation or effusion of urine into the cellular tissue (*ammoniaemia*). Here the absorption of ammonia causes a sudden hyperæmia of the brain, which may soon result in vomiting, delirium, amaurosis, or convulsions; these consequences are so frequently followed by coma, or by a speedy repetition of the convulsions, that death often results in the course of only a few hours.

2. *Cholæmic Convulsions*.—Cholæmic convulsions are another form of eclampsia toxica, resulting from the introduction of decomposing products of animal secretions into the blood. As in ammoniaemia, the patients become restless, complain of headache, deliria and convulsions set in, leading to coma and

death (*Schuetz*). According to *Frerichs*, death from intoxication of the blood occurs if, on account of the dissolution of the hepatic cells, the function of the liver expires. Hence we find cholæmic convulsions to occur most frequently in acute atrophy of the liver, and in that form of hepatic atrophy which results from the stagnation of bile in consequence of the closure of the ductus choledicus and hepaticus.

3. *Convulsions from Inanition*.—*Schuetz* remarks, that in death from starvation, or from abstinence from fluids, deliria and convulsions occur in the latter case sooner than in the former. This observation has been repeatedly verified. The late *Tanner* case shows how a free supply of water may contribute to the renovation of the tissues, and thus greatly prolong life, even when no food is taken into the system. The explanation lies in the fact, that the material by which the body is nourished is made up in part of the disintegrated tissues; for while the absolute quantity of ingesta and egesta are, as a general rule, equal—that is, under the ordinary circumstances of life—the waste of the tissues is supplied, not by the chyle alone, but by both lymph and chyle; the former of which, except for a few hours after the ingestion of food, is composed chiefly of the products of the waste tissues. Thus, the nutritive fluids, composed in great part of the products of disintegration, exudation and absorption constantly going on in the interior of the body, are re-absorbed, and again enter the current of the circulation through the same channels by which the products of digestion are introduced. Now it is evident, that if the supply of fluids be entirely cut off, this part of the nutritive process will not only be greatly interfered with, but the blood itself will become so rapidly deteriorated as to have an intoxicating effect upon the nervous centres, and convulsions and death will speedily follow. In short, as remarked by *Schuetz*, the procedure is nearly the same as in the convulsions which we too often see in consequence of severe diarrhœas.

4. *Hydræmic Convulsions*.—Chlorosis, anæmia, and excessive hemorrhages, by their defibrinizing effect upon the blood, render the latter unsuitable for purposes of general nutrition, and when the hydræmic quality greatly predominates, the

nerve-centres become implicated, giving rise to a great variety of nervous phenomena, such as trembling of the fingers, muscular twitchings, shaking of the knees, palpitation, difficulty of breathing, sensation of constriction in the laryngeal region, and various forms of visceralgia—prodromata that are apt to culminate in convulsions. This condition of the blood sometimes follows certain other diseases and morbid states, such as scarlatina, rheumatism, pneumonia and dropsy. In all such cases, whether spontaneous or consecutive, the final results are the same; a certain excess of liquor sanguinis, or what is the same thing, a relative deficiency in the amount of solid constituents of the blood, terminating in irregular distributions of the circulating fluid, muscular debility, amblyopia or amaurosis, and convulsions.

Treatment.—The treatment of the various kinds of convulsions just described, resolves itself chiefly into the removal of the cause, since without this recovery will always be impossible; while on the other hand, its early accomplishment will in most cases render all other treatment unnecessary. This, however, is often a very difficult thing to effect, especially where the depurative function of the kidneys is much impaired.

As for the medical treatment of this class of convulsive affections, we shall not attempt to offer anything more than a mere outline, by way of suggestion, being persuaded that the great variety of pathological conditions associated with these diseases, and which in most cases constitute their efficient causes, require that each case, in order to be successfully treated, should be strictly individualized. We therefore present the following

Synopsis of Treatment:—*Apis*, *Mercurius corr.*, *Kali hydriod.*, *Hepar sulph.*; congestion and inflammation of the kidneys—*Cantharis*; acute stranguary, urine scanty and hot, mixed with blood or albumen, issues drop by drop—*Belladonna*, *Stramonium*, *Conium*, *Apis*; symptoms of cerebral hyperæmia—*Agaricus*, *Anacardium*, *Belladonna*, *Chloral hydrate*, *Camphor brom.*, *Lactuca vir.*; soporose condition—*Arsenicum*, *China*, *Cinin. arsen.*, *Lachesis*; anæmic symptoms predominant

—*Nux*, *Phosphorus*, *Rhus*; paralytic symptoms—*Phosphorus*, *Phosphoric acid*, *Lycopodium*; ammoniæmic phenomena.

Illus. 19.—W. Ruhl, laborer, was brought into the hospital in a perfectly unconscious state from mephitic poisoning; head bent backwards, face livid, respiration hurried, every expiration loud and groaning, pulseless, muddy foam out of the spasmodically closed mouth, pupils dilated and not reacting to light, extremities constantly thrown about by clonic spasms, hands and feet bluish and cold, the whole body smelling foul from the mud in the sewer where he worked. Prescribed *Chloral hydrate* *gg* 3. A few minutes after taking the Chloral, the spasms ceased, the mouth became open, patient laid quietly on his back, breathed regularly with loud expiration, pulse weak but easily felt, somewhat accelerated. Convulsions returned the following night, but were speedily subdued by *Chloral* *gg* 2, and the patient made a slow but good recovery. —*Dr. Harborth.*

Illus. 20.—Albuminuria following scarlet fever, in a boy æt. 12. Twenty days after the appearance of scarlatina, he was attacked, after exposure to cold, with tremors of the whole body, especially of the left side; face anasarcaous; urine albuminous. Treatment, *Mercurius corr.* 3*d*. Seven and a half hours afterwards he was taken with convulsions; spasmodic contractions confined almost exclusively to the left side, partial opisthotonus, pupils dilated, retina insensible to light; blindness an hour and a half before the convulsions; spasms occurred every ten minutes, the intervals growing shorter until they were of only four minutes duration; breathing rattling. Prescription, *Nux v.* 3*d*, every half hour. In three hours the convulsions ceased and did not return.—*Dr. J. F. Merritt.*

CHAPTER II.

EPILEPSY.

The term *epilepsy*, derived from two Greek words signifying "I seize upon," is used to denote the malady called in common language "the falling sickness." The ancient Greeks, who, in common with the Jews and Romans, supposed it to be due in a very special manner to the influence of the heavenly powers, or of evil spirits, called it "the sacred disease;" an idea which Hippocrates took the pains to refute in a special treatise on the subject, in which he shows that it is no more "divine" than any other disease. The notion of demoniac possession was of still wider prevalence, being entertained by all the oriental nations.

The disease, which is characterized by sudden and complete loss of consciousness and sensibility, with convulsive movements of the voluntary muscles, occurs in paroxysms lasting from one to three or more minutes. The attacks are separated from each other by free intervals of unequal duration, and are followed by exhaustion and stupor. During the convulsive state, the breathing is occasionally arrested, owing to spasm of the respiratory muscles and temporary closure of the glottis. In the majority of cases, the attack occurs without any premonitory symptoms; in others it is preceded by

The aura epileptica.—This is a peculiar nervous sensation which precedes the paroxysm in some epileptics, and which has been variously compared to a current of warm or cold air, to the trickling of water, or to the creeping of insects, passing over the body, from the extremities towards the head. After reaching some definite point, such as the pit of the stomach,

the cardiac region, the neck, or the head, the paroxysm breaks out. The aura is never more than a few minutes in duration, and is frequently too transient to afford time for securing the patient's safety during the fit. Other prodromata, however, which for the sake of convenience are generally included under the term "aura," such as the usual symptoms of cerebral congestion, hoarseness, anxiety, irritability, depression of spirits, palpitation of the heart, pallor of the face, strange tastes, spectral illusions, etc., may precede the real attack for several hours or days; though as a general rule, such precursory symptoms, like those of the true aura, are of very short duration. The second stage constitutes what is called

The paroxysm.—In almost every case of true epilepsy, the patient falls down, uttering a loud cry or shriek, and immediately becomes unconscious, insensible and convulsed. The epileptic cry is so constant and peculiar as to constitute a characteristic symptom of the disease, being often so wild and unnatural as to terrify even the lower animals. The spasm is at first of a tetanic character, the neck, trunk and extremities being rigid, the head bent backwards or to one side, and the jaws tightly locked; at the same time the face swells and turns black with venous congestion. After the lapse of a few minutes the rigidity gives place to clonic convulsions, the spasms following each other in rapid succession, being attended with foaming at the mouth, which is often bloody from biting the tongue, violent spasmodic movements of the facial muscles, working of the jaws, trembling and rolling of the eyes, and all the usual phenomena of convulsive action. To these are frequently added other symptoms of a peculiar, occasional or characteristic nature, such as spasm of the larynx, with temporary arrest of the breathing, deathly pallor of the lips and cheeks, ghastly expression of the countenance, tumultuous action of the heart, and a considerable elevation of temperature. The last-mentioned symptom serves to distinguish the disease from hystero-epilepsy, in which the thermometer never rises above 38.5° C., while in true epilepsy it often rises much higher than this, especially when attended with meningitic or apoplectic form congestion. At this stage the patient usually presents a

truly frightful spectacle. What with the terrible distortion of the face, body and limbs; the hissing, choking respiration; the frothy and bloody sputum; the staring eyeballs, distended veins and firmly clenched hands, the life of the patient seems to all appearances to be in the most imminent danger. The convulsions, however, gradually diminish in intensity, usually passing off in from three to fifteen minutes, and leaving the patient in a state of motionless and profound sopor, from which, after a variable interval, he awakes, either with a complete return to consciousness and apparent health, or, as is more frequently the case, with a feeling of exhaustion, mental confusion, headache, unsteadiness of gait, and a desire to sleep. After this, a short nap generally puts an end to all unpleasant symptoms, the respite continuing until the supervention of a fresh attack. An examination of the urine generally shows an increase in the amount of urea both before and after the attack.

Grand mal and petit mal.—The fit above described is called by the French *le grand mal*, or greater evil; but there is a much milder form of the disease, called *le petit mal*, or *vertigo epileptique*, in which, although the patient is temporarily unconscious, the fit is very transient, and unattended by any marked convulsive movement, or any considerable obscuration of the mental faculties. Such a patient may be attacked while conversing with another person, and after momentarily presenting the appearance of a distant and strange look, a look of apparent abstraction, may so far recover himself as to resume the thread of conversation, and be wholly oblivious of any interruption. This variety of the malady, although imperfect, is nevertheless real epilepsy, and often grows into, or alternates with, the *grand mal*.

Other varieties.—Recent authors have made other distinctions, founded chiefly upon pathological conditions, of which the following are the most important.

1. *Thalamic epilepsy.*—In this variety the optic thalamus is the seat of irritation, and the leading phenomena, according to Dr. Hammond, are simple hallucinations and loss of consciousness.

2. *Cortical epilepsy*.—Charcot and Pitres, in their essay on the pathology of the cortical substance of the hemispheres, say that as long as we witness only the spasmodic affections, without any other permanent manifestations, especially of a paralytic character, we may regard the case as one of cortical epilepsy. Its essential characteristic is the introduction of the disease, especially of the single attack, by local twitchings of an isolated group of muscles. Most frequently the spasm begins in the muscles of the hand, especially of the thumb and index-finger, radiates upwards to the shoulder, or extends itself also to the corresponding half of the face and to the lower extremity, or eventually over the whole body. During the relatively long initial stage, the patient remains perfectly conscious; which only disappears when the convulsions take on more of a general character. The fit may also set in as a simple spasmus facialis; more rarely with twitchings of the lower extremity. A deviation of the face and of the eyes, usually to the side of the body opposite to the convulsed one, is frequently observed. The paroxysm seems to weaken excessively the parts affected with convulsions, and this weakness may persist for hours or days. The same peculiarities are observed in every fit, a characteristic manifestation of cortical epilepsy. It is also characteristic of epileptic mania, where the same hallucination always ushers in the maniacal attack.—(Berger.)

3. *Vasomotory epilepsy*.—This is considered by different authors as a special form of epilepsy. Nothnagel objects to thus designating all cases of epilepsy where, before the appearance of convulsions and unconsciousness, manifestations of arterial vascular spasm set in, especially on the fingers and toes, and extending upwards. He describes these manifestations as a peculiar vaso-motory neurosis. Where a stenocardiac state exists, without any affection of the heart, caused by an extensive vaso-motory arterial spasm, Lardois calls it angina pectoris vasomotoria. In one case, with some sensation of vertigo, clonic twitchings of the extremities set in; and in another case there was nearly perfect unconsciousness. In several cases of this kind, Prof. Berger observed the symptoms increase

to a perfect epileptic fit. Such cases are of great interest, since, under the supposition of an angiospasmic cause of cerebral anæmia, they may serve to establish the theory of epilepsy, in which case the name of "vaso-motory epilepsy" would be appropriate. These cases differ from genuine or typical epilepsy, in that they, like all peripheric forms of epilepsy, are more amenable to treatment. A leading characteristic for its course and development is the gradual propagation of the angiospasm from a circumscribed part of the body, as a finger and hand, to larger cutaneous regions, till finally the epileptic spasm is fully developed. In persons with hereditary disposition, the disease quickly develops itself in its full strength, and shows the same obstinacy to all treatment.—(*Idem.*)

4. *Reflex epilepsy.*—This class is more general than the preceding, and includes every form of peripheral epilepsy, whether traumatic, vasomotory or ovarian. The latter constitutes a special form of reflex epilepsy, and is of such practical importance that we shall treat of it in a separate section, under the title of hystero-epilepsy.

The following case of reflex epilepsy, by Prof. Berger, will serve to illustrate this particular class:—"H. Schneider, æt. 23, soldier, received three months ago a bayonet-wound in the left upper arm. The bone was not injured, but the nervous medianus was, so that he suffered from complete paralysis and high-graded anæsthesia in the range of this nerve. Shortly after receiving this injury, severe neuralgic pains and paræsthesia of the hand and fingers set in; the external wound healed quickly, but about three weeks afterwards frequent clonic twitching appeared in the left arm, and four weeks later for the first time a perfect epileptic attack. Since then the shaking spasms of the arms, as well as the general unconscious epileptic attacks, returned three or four times a week. The epileptic attack is ushered in by a clonic spasm of the left arm, beginning in the fingers and rapidly spreading upwards. There is no heredity in this case, nor did this soldier ever suffer before from any nervous disorder."

Results.—The ultimate consequences to the patient depend upon both the frequency and the severity of the attack; although the former seems to influence the gravity of the result more than the latter, since it is found that, as a general rule, severe paroxysms at distant intervals are less harmful than frequently repeated attacks, even of the *petit mal*. Sooner or later the epileptic, whose mental condition is always more or less depressed and gloomy, loses his memory, his intellect and

judgment become impaired, and he is gradually reduced to a state of imbecility; or he is seized, after oft-repeated and severe attacks, with insanity, sometimes assuming the form of acute mania, at others that of monomania. Occasionally the disease is attended with paralysis, or some other manifestation of organic change in the brain.

Causes.—1. *Predisposing causes:* The most common predisposing cause is heredity. Not only do epileptics frequently beget epileptic children, but the hereditary tendency is also manifested by what is called the convertibility of nervous diseases. Thus, a choreic patient may have an epileptic child, and vice versa. The same is true of all nervous diseases. The hereditary tendency to the transmission of epilepsy, or of a morbid state closely resembling it, is well illustrated by the experiments of Brown-Séquard upon guinea-pigs. This celebrated physiologist, by the division of certain portions of the spinal cord, not only excited epileptiform convulsions, but the artificial disease thus produced continued long after the primary effects of the injury had ceased, and in some cases was transmitted to the offspring, becoming, like the natural disease in man, hereditary. Another predisposing cause of the disease, apparently, is malformation of the brain. This seems evident from the fact that epilepsy is most frequently met with in confirmed lunatics and idiots.

2. *Exciting causes.*—The exciting causes are numerous. The most common are: self-abuse, or any undue excitement of the nervous or sexual systems, amenorrhœa, fright, dentition, verminous irritation, especially that caused by tænia, the sudden suppression of cutaneous eruptions or of purulent otorrhœa, plethora, and the sight of other epileptics.

“In one hundred and two cases treated by Dr. Hammond, in which evidence was received, the epilepsy originated from the following causes:—

Over mental exertion	17
Venereal excesses	13
Menstrual derangement	10
Anxiety and grief	10
Indigestion	11
Dentition	11

The remaining twenty-eight originated in frights, blows, sunstrokes, fevers, etc.”

3. *Efficient causes*.—The chief efficient causes of epilepsy are such as produce cerebral irritation, namely, adventitious growths in the brain, inter-cranial tumors, blood-poisons, such as lead or absinthe, affecting the brain, etc. Whether true epilepsy can arise from such injuries, was for a long time a question still undecided, for, as Prof. Berger says, all cases must be excluded where, in consequence of severe palpable lesions, such as fracture of the brain, epileptic spasms set in as a mere symptom of the trauma. If the diseased state is chronic, and the inter-paroxysmal state free from traumatic symptoms, the case should be regarded as one of epilepsy.

4. *Constitutional causes*.—Under this head we include those conditions which some pathologists rank as special forms of epilepsy, such as the *syphilitic*. Such cases are not, of course, idiopathic, in the proper sense of that word, since, in the language of Schuetz, it is characteristic of pure epilepsy that no material or tangible cause can be shown for that disease, and whenever we find such a cause it determines our diagnosis, and the epileptic fits are only concomitant manifestations.

By *syphilitic epilepsy*, according to Prof. Berger, we do not understand a case where, in the course of cerebral syphilis, epileptic convulsions are observed, but that syphilitic cerebral affection where, for a length of time, the epileptic spasms, without complication from other cerebral manifestations, offer the sole symptoms of the disease, and thus the picture of a common idiopathic epilepsy is falsely presented to us. In their monograph on "Syphilitic Nervous Disorders," Gros and Lancereaux report fourteen cases of syphilitic epilepsy, where during the whole course of the disease no other symptoms of a material cerebral lesion were observed. A cure followed in every case where anti-syphilitic treatment was employed, and the persistence of the cure could be shown years afterwards. Troussier and Pidoux report a remarkable case of a gentleman who was treated for years by the most celebrated physicians of London and Paris for his epilepsy, but so far without results. Anti-syphilitic treatment was then tried; the epilepsy disappeared, and even after twelve years the cure could be considered permanent.

Haubner describes as a peculiar form of syphilitic epilepsy the following group of symptoms:—Mental disturbance with epilepsy, imperfect paralysis, and a terminal, short, comatose state. In the midst of apparent health an epileptic attack suddenly sets in, followed after intervals by new ones, till finally other symptoms are observed. The epilepsy sometimes remains for a long time the only symptom.

According to Fournier, epilepsy is a frequent symptom of cerebral syphilis, and appears mostly as *epilepsia gravior*. Though there are hardly any differential points from common epilepsy, we may regard syphilis as the cause of the disease where, immediately after the attack, transitory paralysis of an extremity, of half of

the body, or only of the face is observed, or where the paroxysm remains imperfect, partial, unilateral (*hemispasm*); in some cases even consciousness remains. Gros and Lancereaux consider the headache, preceding the fit for a longer or shorter time, as of importance, and Boyard leads our attention to the circumscribed prodromal headache. Charcot describes a case where the fit was always ushered in by an exacerbation of a pain steadily localized at the right parietal bone, whereas the convulsions occurred on the left side of the body. Other authors report similar cases; though in some of them the prodromal fixed headache and the spasms were on one and the same side. Still, says Berger, we must not forget that interparoxysmal headache is a frequent symptom also of idiopathic epilepsy. Fournier therefore lays great stress on the totality of the symptoms observed during the whole course of the disease. We find, in contradistinction to pure epilepsy, after more or less time, intervallary symptoms, such as headache, vertigo, sleeplessness, at first transitory then persisting, paralysis, neuritis optica, etc.; in other words, syphilitic epilepsy characterizes itself in its course as symptomatic, a pseudo-epilepsy, the clinical expression of a permanent cerebral lesion.

Berger asks whether it is possible to diagnose syphilitic epilepsy at a time when the above-mentioned criteria are yet absent or unobserved. The age of the patient may throw some light on this question, for whereas idiopathic epilepsy develops itself preponderatingly during first and second childhood, the beginning of syphilitic epilepsy is only observed during manhood. In none of the cases observed by Gros and Lancereaux was the patient epileptic from childhood; in all of them the first paroxysm appeared at an age when it is only exceptionally observed in common epilepsy, and Fournier puts it therefore as an axiom that epilepsy, the first attack of which appears during manhood, should excite the suspicion of syphilis as its cause. Where in a given case the usual causes of epilepsy, such as heredity, alcoholismus, trauma, etc., are wanting, and where suspicion of syphilis is justified, and where the epileptic fit evinces the characters of partial, hemiplegic epilepsy, we may consider ourselves nearly certain in our diagnosis, whether at the time other manifestations of syphilis are present or not. With hardly any exception syphilitic epilepsy appears only several years after the primary infection, (one to eight years and over), and most authorities consider it a symptom of tertiary syphilis.*

In brief, then, we have the following points of differential diagnosis: Syphilitic epilepsy occurs in patients who have not had epilepsy in early life, and who have reached the age of at least thirty years; the disease is frequently associated with or is followed by some form of paralysis, generally partial; the attacks are frequently preceded by headache, likewise partial, and the convulsions occur often, that is, many in quick succession, the interval between the series of attacks being comparatively long; the periods of quietude, however, are not free from headache or other nervous symptoms, which exist and often become aggravated; conditions contrary to what usually obtain in idiopathic epilepsy.

Treatment.—It must be confessed that the medical treatment of epilepsy, whether by allopathic or homœopathic thera-

* *Zeitschrift fuer Pract. Med.*, July, 1878.

peutics, is on the whole anything but reliable or satisfactory. True, very many cases of genuine epilepsy have been cured, and doubtless a much larger number would have yielded, had the treatment been persisted in for a sufficient length of time; but our eleemosynary institutions bear ample evidence of the fact, that a large proportion of such patients never recover, even under the most favorable circumstances. Regarding all such cases, therefore, as proper subjects for even palliative treatment, we shall not attempt to confine ourselves here to the strict application of our therapeutic law, but shall endeavor to give a fair, but brief *resumé* of the best clinical experience of both schools.

During the fit.—The patient should be placed in a comfortable position, and, if practicable, on a bed or lounge, with the head slightly elevated, and all portions of the clothing that interfere with the respiration or circulation, removed or loosened; fresh air should be freely supplied to the patient, his tongue should be protected by placing a piece of cork or a small pad between the molar teeth, and, if exposed to the glare of the sun, a black silk handkerchief or cloth should be placed lightly over the face. Beyond this nothing should be done, except what may be necessary to guard the patient from injury during the period of unconsciousness that usually follows the attack, and which should be allowed to pass undisturbed.

Between the fits.—During the interval between the fits, an endeavor should be made to discover and remove, if possible, the condition which is the essential element of the disease, namely, the efficient cause; and if this is found to be of such a nature as not to admit of removal, then the exciting cause, if it can be ascertained, should be carefully guarded against or removed; and such preventive or palliative measures should be made use of as may be best calculated to diminish the frequency and severity of the attacks. At the same time the indicated remedy, which if it does not prevent will in most cases mitigate the severity of the succeeding paroxysms, should always be given; and as this, even when rightly chosen, will in most cases require to be given during a period of several months, unusual care should be observed in making the selection.

To such institutions display.
 Eleemosynary means showing a more complete

Synopsis of Treatment.—Amm. brom., Bellad., Hydr. ac., Ignat., Kali brom.; *recent cases*—Arg. nitr., Arsen., Cupr. ac., Cupr. am., Ferrum, Calcar., Bufo, Cocc. ind., Sulphur, Zincum; *chronic cases*—China, Ferrum, Phosphor., Phos. ac., Sulph. ac.; *from self-abuse, excessive sexual indulgence, etc.*—Acon., Opium; *from fright, the former when there is fever*—Artem. vulg., Cina, Santon., Teuc.; *from verminous irritation*—Bellad., Chamom., Gelsem.; *from dentition*—Kali iod., Merc. corr., Nitr. ac.; *sypilitic epilepsy*—Chloral hydr., Kali brom.; *petit mal*.—Arnic., Amyl. nitr., Agar., Curar., Cann. ind., Cicut., Glonoin, Hyosc., Plumbum, Staphis., Stramon., Zizia, Tereb.; *remedies which have been used successfully in some cases.*

Belladonna.—Previous to the attack, headache, throbbing in the temples, dilated pupils, intolerance of light, redness of the face, and other symptoms of congestion of the head. During the intervals, anxiety, fear of imaginary things, disturbed sleep, vertigo when in motion or at rest, congestion of the face, burning dryness of the eyes, peevishness, twitching and jerking during sleep,

Illus. 21.—Young man, æt. 22, has suffered with epilepsy seven years; the attacks return every week or ten days, and are preceded by headache, throbbing in the temples, intolerance of light, dilated pupils and vertigo. During the intervals there is redness of the face, vertigo when in motion or stooping, constant fear of falling, restlessness at night, anxiety, fear of doing something wrong. Cause unknown; father was a monomaniac, but free from epilepsy, and sane on all subjects but one, jealousy. Had been treated both allopathically and homœopathically, for four years without benefit. Exacted a promise that I should have at least one year in which to effect a cure. Gave *Belladonna*²⁰⁰, night and morning, for one month, with slight improvement; less headache and paroxysms somewhat less frequent, but patient peevish and impatient. Changed to *Ignatia*³⁰, to be taken in the same manner; in three weeks' time, patient as bad as ever. Returned to *Belladonna*, 200th dil., and gave it without interruption for the next nine months, with the result of affecting an apparent cure. The paroxysms gradually diminished in frequency and severity, until about

three months ago they ceased altogether. During the last five weeks the patient has taken no medicines whatever, has had no return of the fits, and appears well.—*Dr. R. T. Looze.*

Illus. 22.—Boy, æt. 12. The attacks, which return every week, are preceded by headache and throbbing in the temples. He has had epilepsy for the last four years. Cause unknown. Belladonna³, every night and morning, has effected a complete cure.—*Dr. Bojanus.*

Cannabis indica.—Headache, especially through the temples, with vertigo; glimmering before the eyes, redness of the conjunctiva, noises in the ears, head feels as though it would burst; great exaltation of spirits, and of bodily and mental vigor.

Illus. 23.—Mrs. —, æt. 56, has suffered from epilepsy for forty years. Her treatment during this period was something wonderful.

She had one unfailing premonition of an approaching attack, which was a feeling of extraordinary mental and physical vigor—an almost ecstatic exaltation of all the powers of mind and body. Her account of this premonitory condition reminded me of my own sensations when taking Haschish, as I once did for experiment. I prescribed *Cannabis indica*, therefore, about one-tenth of a drop at a dose, every hour when she felt “exalted.” It is now nearly three years since she commenced the use of the remedy, and she has had but one slight seizure during that time, whereas before taking the Cannabis, she had about thirty annually.—*Dr. R. N. Foster.*

Staphysagria.—Great sensitiveness of the mind and nervous system; vertigo, vanishing of the ideas, anxiety with fearfulness; headache as if the brain were compressed; great weakness, with spasmodic drawings and twitchings in the muscles; tendency to paralysis; bad effects of masturbation or excessive sexual indulgence.

Illus. 24.—G. M., æt. 60. For fifteen years has had epileptiform convulsions with loss of consciousness; retraction of thumbs, and foam at the mouth; attacks every one or two months. Cause, had been unjustly accused of infidelity. Gave *Staphysagria*³⁰, every morning. Five years have passed without a return.—*Dr. Cigliano.*

Opium.—Convulsions caused by fright, or where the mental functions are specially affected; it has also been strongly recommended for cases where the fits occur during sleep; pupils dilated, eyes only half closed.

Illus. 25.—Subject, a little girl, who had been afflicted with the disease for a number of years. Both allopathic and homœopathic treatment had been tried, but as yet without any beneficial result. I found my patient with all the symptoms of epilepsy; great convulsive movements, with foaming at the mouth, etc. During the fit the child kept its eyes only half open; it would neither close them tightly, nor would it any more than half open them. Learning that the child had, previous to the attack, been frightened by a large dog, I prescribed *Opium*²⁰⁰. The patient, after taking the medicine, went to sleep and slept all day, and has not had any return of the attacks. It has now been almost three months, and before it never passed a week without them.—*Dr. H. Reynolds*.

Kali bromatum.—This remedy is now extensively employed by both schools. It cannot be denied that, in the majority of cases, if judiciously and perseveringly used, it diminishes the severity of the attacks, lessens their frequency, and in many cases effects a complete cure. According to Dr. Riedel, of Berlin, it so contracts the small vessels as to diminish the reflex activity in the nerve-centres, and so reduces both sensibility and muscular irritability. Its effects are most striking in recent cases. In the usual large doses in which it is given (grs. x to xx ter die,) it is not suited for attacks of the *petit mal*; though I have verified Dr. Hammond's observation in such cases, the symptoms disappearing on suspending the use of the remedy. It is probably the best *palliative* remedy that we have, especially in traumatic cases, in which it often proves curative.

Illus. 26.—M. H., æt. 13. At intervals of seven, ten and fifteen days, is attacked, usually at four o'clock, A.M., with epileptic spasms. At fourteen the catamenia appeared, and it was hoped that this change would put an end to the attacks; but they still continued to return, without mitigation or change of time. Stramonium, Cuprum aceticum, and electricity, were all tried, but without producing any permanent benefit. I

3. Belladonna, Hydrocyanic acid & the Umbelliferæ
 than the Crocata, Cicuta Virgata. Pethusa Cymifolia for
 pyretics, for menses Cuprum aceticum, Stramonium & its
 pur & Dignation Calomel & Silica are the main drugs.

then prescribed *Kali bromatum*, two drachms to half a pint of water, a dessertspoonful three times daily. The relief being greater than at any previous time, she was given three grain doses, three times a day at first, then increased until she took ten grains at one dose, all the time improving. Hoping the doses might be lessened, I began to diminish them, but it would not do, and ten and twelve grain doses were henceforth given until the case was entirely cured, which was in about six months. No ill effects have resulted, and the patient has remained well eight months. She is now eighteen years old, and appears perfectly healthy.—*Dr. E. G. Cook.*

Kali iodatum.—This remedy is especially adapted to syphilitic cases, in which it has wrought many notable cures; it has also proved curative in some recent cases of pure epilepsy, and ameliorative in some chronic ones. Four years ago I succeeded in curing a case of *petit mal*, of traumatic origin, in a boy fourteen years of age, on which I was unable to make any lasting impression with any other remedy. *Kali bromatum* seemed to do some good, so far as lessening the frequency and severity of the paroxysms, which were of daily occurrence, but they were not permanently interrupted until I had given *Kali iodatum*, 1 x dil., for about ten days, when they ceased altogether, and have not returned.

Illus. 27.—E. F., æt. 11, fell down stairs and struck his head. He became immediately unconscious, although no lesion could be observed, except a swelling around his left eye. This unconsciousness lasted full four weeks, and when he awoke the faculty of speech was found greatly diminished; no paralysis of face or of the extremities was present. Three months afterwards, the patient appeared well enough to re-enter school. Towards evening the boy showed a congested face from mental excitement, but he never complained of headache or vertigo. About two and a half years after the fall the first epileptic fit appeared, after a little more than the usual mental strain. Since then he has had many fits at longer or shorter intervals. Præcordial anguish, dullness of head, vertigo, heaviness of the tongue precede the attack, then absolute coma and convulsions. During the intervals the patient is perfectly healthy, never

Note Bromine or Bromine of potassium is almost exclusively given in sufficient quantity to produce Bromine in an acute case - it will subside but rarely cures

complains of headache, but is irritated and easily angered. Kali bromatum and Atropine failed, but *Kali iodatum* steadily given for three months, has kept the fits away for the last eight months.—Prof. C. Berger.

Amyl nitrite.—It has been conclusively proven that the inhalation of the nitrite of amyl during the epileptic aura will, in most cases, prevent the further development of the paroxysm. It is not yet decided whether it is capable, of itself, of curing epileptic convulsions, but experience shows, that after the inhalation of a few drops, two or three times, the blood circulates more rapidly, the face, neck and head are flushed, the pulse becomes fuller and quicker, and the convulsions almost instantly cease and do not return again for many hours. In connection with Atropine and Kali bromatum, the convulsions have been prevented for several months.—Dr. J. Maximowitsch.

It should only be used when the face is pale and only as a preventive for it. Has been proven that it will not cure—This is an antispasmodic action. Richard Hughes of England first introduced Glonine 1x to take a few drops internally for the same condition. Drs. Wm. Mitchell & Crichton have reported favorably of the use of Amyl Nitrite as a preventive of the tonic Dr. Hammond limits its use to those cases which become pale in the very inception of the attack & Dr. Hughes agrees with him. Use a few drops on cloth & inhale when there is an aura or premonitory symptoms.

CHAPTER III.

HYSTERO-EPILEPSY.

The most diverse views are now entertained regarding the nature, the cause, and even the very existence of *hysteria*. Schuetz, whose monograph on Convulsions has, perhaps, no superior in any language, says "hysteria and hypochondria disappear from the text-books of our age, and live only in the memory of the laity and old foggy practitioners. In former times, all manifestations standing in connection with morbid states, disturbances, or irritation of the uterine system, were denoted by the same general name of hysterical states, without making any very exact examination of the uterus and its adnexa; it was considered characteristic of hysteria that it had no characteristic symptoms, and that it may manifest itself in ever so many diverse ways, and the uterus must be somehow complicated with it." On the contrary, Dr. Reynolds, whose views on this point coincide with those of the majority, and whose definition of the disease is perhaps one of the best that can be given, says: "The hysterical state is essentially one of mental perturbation, and it is brought into existence, if not inherited, by those conditions which are most active in producing disorder of the mind—in the male sex by worry, anxiety, overwork, late hours, accidental injuries, and dissipation; in the female sex by vexatious emotions, want of sympathy or success, disappointed or concealed affection, want of occupation, fear, and morbid conditions or supposed morbid conditions of the reproductive system. . . . It would appear that the nutrition of the whole nervous system is changed, but that change is of such a kind that it passes beyond our power of recognition,

except in its physiological or pathological effects. We cannot see degeneration of tissue here, or too rapid metamorphosis there, but we can witness the effects of such morbid processes in movement in secretion and nutrition, and we observe some of the ultimate results of such changes in emotion and sensation."

We differentiate, therefore, between hysteria, properly so called, which we regard chiefly as a form of mental derangement, and the nervous or reflex phenomena constituting the so-called hysterical fit; the latter being for the most part a convulsive affection, and an accidental or incidental accompaniment or complication of the former. Consequently, we have placed hysteria, where we think it more properly belongs, under the head of "Moral Disorders;" and shall here treat of only one of its many protean forms or phases—namely, that now commonly designated as hystero-epilepsy.

History.—We are indebted chiefly to M. Charcot, whose extensive experience in La Salpêtrière fully qualifies him to speak authoritatively on the subject, for a clear and satisfactory description and diagnosis of hystero-epilepsy. His views regarding the genuineness and distinctive character of the affection have also been confirmed by other French observers, especially MM. Dubois, Briquet and Tissot; so that the opinion of those who deny its existence, or the possibility of a satisfactory differentiation between it and hysteria on the one hand or epilepsy on the other, and whose field for observation is known to be comparatively limited, appears to be entitled to but little weight.

That both epilepsy and hysteria, as distinct diseases, may for a time coexist in the same patient, has long been admitted. The cases are not infrequent in which those suffering from chronic epilepsy have been attacked with some form of hysteria, which, instead of superceding the original disease, has only added to the sufferings of the patient. On the other hand, the instances are still more common, where epilepsy has set in, and run its usual course, in well-known subjects of hysteria, without the latter interfering in the least degree with its development or progress. Such cases are both interesting and

instructive, but are not included in the disease at present under consideration.

The term *hystero-epilepsy* is applied only to those cases in which the paroxysms consist of both hysterical and epileptic symptoms combined, and not to those in which hysteria and epilepsy are associated as distinct diseases, each being characterized by its own peculiar symptoms. In the former the paroxysms resemble those of true epilepsy, and yet they possess features of such a distinctive character as to admit of ready recognition by those to whom the characteristic symptoms are familiar.

As we should expect, the women most prone to hystero-epilepsy are those who are likewise most subject to attacks of ordinary hysteria, namely, such as are of a highly emotional nature, of exalted impressionability, and full of romantic notions; girls addicted to novel reading, whose passions have been unduly excited, and chiefly at the expense of their physical well-being; women whose nervous systems are not well-balanced, whose minds have not been properly cultivated, and who, perhaps, have inherited a trace of insanity or of moral obliquity; those in short whose mental equilibrium, without being actually upset, is nevertheless weak, unstable and easily disturbed. In addition to this, there is in most cases a weakened condition of the sexual organs, and especially an irritable state of the ovaries, one or both of which are always implicated, the left more frequently than the right. This hyper-sensitiveness of the ovaries may result either from self-abuse, excessive sexual indulgence, menstrual irregularities, or any cause capable of producing ovarian congestion. In whatever way excited, it is highly probable that these organs act as reflex centres of the disease.

Symptoms.—The initial symptoms are usually of an epileptic character; but the aura, instead of being seated in the head or extremities, is always abdominal. It is also of longer duration than the epileptic aura, occupies chiefly the epigastrium, and never takes the form of vertigo. Warned of the approaching fit, the patient appears greatly alarmed, turns pale, utters a characteristic cry, and falls unconscious to the ground.

The tonic stage now sets in, exhibiting many of the features of ordinary epilepsy. The face becomes livid and swollen, the features horribly distorted, the jaws locked, and the mouth and lips covered with bloody foam; at the same time, the limbs become rigid and almost immovable, being subject only to slight oscillations, which are chiefly unilateral. After a time this tonic rigidity suddenly gives way, the muscular system becomes relaxed, and the patient sinks into a state of profound coma, accompanied with heavy and stertorous breathing.

So far the paroxysm exhibits the type of genuine epilepsy; but now comes the hysterical phase of the disease, the appearance of which is coincident with the clonic stage. And as the tonic stage differs from the corresponding stage of epilepsy chiefly by being more out-spoken, more tetanic as it were, so the clonic stage is pre-eminently hysterical. In this, it is apparent that the muscular movements are intentional; though varied and eccentric, they are expressive of the passions which at the moment occupy the mind of the patient. Now they show her to be actuated by the most intense hatred; now love fills her bosom and dictates every movement; now fear haunts her mind, and she shrinks from the objects of her terror; and now joy lights up her countenance, and beams in every feature. At last the storm of passion breaks forth in all its fury; the patient lives entirely in a creation of her own fancy; the moral nature seems shaken to its very foundation, and modesty, prudence and self-interest no longer control her actions. The storm of passion sweeps over her soul like a hurricane; all that is beautiful, and anon all that is hideous and revolting, is realized in her imagination and mirrored in her actions, which at one time express the higher and at another the lower passions of her nature. Thus, having undergone, as it were, every imaginable experience in the heavens above or the infernal regions below, she returns, with violent sobs, into the world of consciousness and reality.

Diagnosis.—Although hysterio-epilepsy is a rare form of disease in this country, it is doubtless more common than our medical statistics indicate. I have myself met with no less than three well-marked cases, one of which was diagnosed as

epilepsy by one consulting physician, and as hysteria by two others. In fact, it has hitherto generally been the practice to call all cases hysterical that displayed to any extent hysterical features; the greater the diversity in the symptoms, so far as simulating other diseases was concerned, being regarded as especially characteristic of that affection. Hence, what have appeared to be merely different phases of the disease, have generally been characterized as epileptiform hysteria, choreaform hysteria, apoplectiform hysteria, and so on, according as it assumed either one or another of these various types. This distinction, however, though sufficiently correct for the great majority of hysteriaform cases met with in general practice, is not at all precise when applied to the disease under consideration. This will be evident from the following points in the differential diagnosis between epilepsy and hystero-epilepsy:

1. Hystero-epilepsy differs from pure epilepsy in never, even when of many years' duration, leading to dementia; the intellect always remains unimpaired by the disease.

2. The epileptic group of symptoms is never complete, and never appears in connection with, or under the form of, the *petit mal*; it never assumes the form of *vertigo epileptique*.

3. Compression of the ovaries always modifies the attack, and sometimes completely arrests it; effects which are never produced in true epilepsy.

4. As in hysteria proper, the general state of health is not often seriously affected; and even when a great number of paroxysms happen in rapid succession, fatal consequences very rarely ensue. Indeed, in ordinary cases, not even nutrition is apt to suffer to any great extent. Thus, one patient referred to by M. Charcot had the disease in its severest form for forty years, and another had no less than two hundred paroxysms within twenty-four hours, and yet survived the attack.

5. When, after a long series of fits, a thermometrical comparison is made between the two diseases, a marked difference of temperature is observed. In hystero-epilepsy, even when the series of paroxysms lasts for months, the thermometer never registers above 38.5° C. In true epilepsy, on the contrary, under similar circumstances, the thermometer rises

considerably higher than this, even when the disease is not complicated with apoplectic or meningetic congestion, in which latter case the thermometer still continues to rise, until it may indicate a fatal termination.

Causes.—The predisposing causes are such as undermine the constitution and vitiate the mind, such as an aimless course of life; faulty education, hereditary tendency, etc. The exciting causes are late hours, nervous exhaustion, mental depression, deficient nourishment, adverse hygienic conditions, or any agency calculated to irritate, overstimulate, or exhaust the genital organs and functions, or lower the vitality of the system. The essential or efficient cause is a diseased state of the sexual apparatus, especially of the ovaries.

Pathology.—Although a diseased state of the ovaries undoubtedly exists in these cases, as shown by the invariable effect produced by their compression, no reliable pathological change has yet been demonstrated, either in these or in any other organs; enough, however, has been established to render it highly probable that the ovaries constitute the centres of reflex irritation whence originate the cerebral and spinal symptoms. The blood also may be more or less depraved, as in ordinary hysteria, but this point has not yet been fully established.

Treatment.—Hitherto these cases have been chiefly treated by the allopathic practitioners into whose hands they have mostly fallen; consequently, homœopathy has as yet but little to offer on this subject in a clinical point of view. In old-school hands the result, so far as regards cure, has invariably been unfavorable; but knowing the great superiority of our treatment in nervous diseases generally, we may reasonably expect, by a strict adherence to the homœopathic principle in its treatment, to present a more favorable report. The most important point, doubtless, is, first of all, to seek to improve both the moral and physical condition of the patient. The diminished vitality should, if possible, be raised to the normal standard by suitable hygienic treatment, and the power of self-control should be aided and strengthened by proper advice and discipline, the observance of regular and correct habits, and the

administration of such remedies as have a specially tonic and healthful action on the sexual organs.

As the field of curative action in these cases is very unfavorable, partly by reason of the nature of the disease, and partly by the fact that the neuroses often become habitual, and therefore particularly obstinate to remedial influences, especial care should be taken, before selecting a remedy, to find out all the important antecedents in the case, such as whether the parents are perfectly healthy, whether they have ever been similarly afflicted or have suffered from any form of mental derangement, or whether the patient herself has been affected with any nervous disease prior to the present attack; in other words the prescription should be based upon the entire obtainable history of the case, and upon the totality of the symptoms, both subjective and objective.

We have already referred to the beneficial effects produced by compression of the ovaries. Dr. Chairon claims that such compression so excites the reflex sympathies of the epiglottis and of the larynx, as to produce the globus hystericus, dysphagia, etc., which pertain to fits of hysteria. From this it appears that ovarian compression is truly homœopathic to the premonitory symptoms of the disease. Moreover, Charcot and Bourneville have obtained the best results by the application of the ice-bag compress for several hours a day on the ovarian region. The hystero-epileptic attacks decreased and the general health improved. Whenever there is an ovarian aura, the breaking out of the fit can be prevented.*

Amyl nitrite.—In hystero-epilepsy, even when there is not a complete cure, very great improvement may be obtained by the use of this remedy. In a very severe case, in which the paroxysms were nearly an hour long, and which had proved rebellious to ice compresses, inhalation of chloroform, etc., the inhalations of five drops of the nitrite of amyl gave complete relief. A second attack was cut short in the same manner, and the patient was cured by this and other nervines.—*Dr. J. Maximowitsch.*

* Med. Cent. Zeit., 36, 1877.

Cannabis indica.—This is the remedy from which we obtained the best results in the three cases above referred to. We used the third decimal dilution, five drops in half a glass of water, giving a teaspoonful three times a day. We administered the remedy during the week immediately before and after the menstrual flow, and omitted it during the remainder of the intermenstrual period. One case was apparently cured, the patient remaining free from attack for more than two years. The others have been greatly benefited, the paroxysms having become much less frequent and severe. Perhaps, if the medicine had been used higher, the result in these cases would have been more satisfactory. As it is, the remedy is the compeer of any that has been tried, and I hope it will be faithfully tested in this class of cases whenever opportunity offers, as its pathogenesis presents a perfect picture of the disease, and fully warrants us in expecting the happiest results from its faithful and judicious employment.

CHAPTER IV.

CHOREA.

The derivation of the word *chorea* is the same as that of our English, or rather anglicized Latin term *chorus*, both words having originally the same signification—namely, that of a company of singers and dancers. By modern writers it is used to denote the disease called “St. Vitus’ Dance,” a spasmodic affection of the voluntary muscles, characterized by the peculiar irregularity, permanence, and partly voluntary nature of the motions. German writers make two distinct forms—namely, *chorea magna*, or *Germanorum*, and *chorea minor*, or *Anglorum*; but as the difference between them is probably only one of degree, we shall describe them both under one and the same heading. It is proper to remark, however, that Von Ziemssen does not regard *chorea magna* as a form or modification of true *chorea*, but “as a degenerate form of hysteria, the causes of the latter playing the chief part in its production, and in exaggerating the simulated spasms to the form of *chorea magna*.”

Chorea is pre-eminently a disease of childhood, occurring for the most part between the ages of six and sixteen, most frequently between the tenth and fourteenth years. Although it is a rare thing for it to occur earlier than the sixth, or later than the sixteenth year of age, it is sometimes met with during infancy and also during mature life. In the latter case it is most apt to occur in individuals of a tuberculous constitution, or in those whose blood is otherwise depraved.

Symptoms.—Sydenham’s description of the ordinary form of chorea is so graphic, and at the same time so accurate, that

we shall make no apology for quoting it. He says it is "a species of convulsion which for the most part attacks boys or girls, from the tenth year to puberty. It first announces itself by a kind of halting, or rather instability of one leg, which the patient drags after him, as idiots do. Afterwards it shows itself in the hand of the same side, which, when applied to the chest, or any other part of the body, cannot be retained in the same situation by the patient even for a moment, but is twisted about from one place to another, however much he strives to prevent it. If a full vessel be given him to drink from, before he can bring it to his mouth he exhibits a thousand gesticulations, like a mountebank; for as he cannot carry the cup in a straight line to his lips, the hand being diverted by the spasm, he tips it from side to side for some time, until at length, by good fortune, approaching it nearer to his lips, he jerks the liquor suddenly into his mouth and drinks it with eagerness, as if the poor creature were merely performing a feat to excite the laughter of by-standers."

In some cases the spasmodic action is so intense that the patient finds it utterly impossible to execute any voluntary movement. As a consequence, he is unable to either dress or feed himself, and has to be cared for like an infant. Although unable to walk or even to stand, he is never still, but is thrown and jerked about in a most violent manner. He is not safe even in bed, but is liable to be thrown out at any moment. This gives rise to bruises and abrasions of the skin, and in some cases to broken bones; eczematous eruptions are also met with, caused partly by the incessant rubbing and attrition, partly by neglect or want of cleanliness, and partly by the lack of innervation attending the disease.

In the majority of cases, however, the disease is much milder, and these consequences do not ensue. The patient is able to perform most voluntary movements, but only in an awkward and imperfect manner. This arises not from the want of power to execute the movements, but to their being interrupted by spasms; and these are not unfrequently increased in violence by the very efforts of the patient to subdue them. When general, all the muscles of the body may be effected, except the

muscles of the external ear, and the sphincters of the bladder and rectum. When partial, they are either limited to the muscles of one side of the body (*hemichorea*), or to particular groups of muscles. Those of the face are especially implicated, producing in turn every conceivable variety of physiognomical expression. At one moment the patient laughs, then frowns, winks, squints, grins, darts out his tongue, twists his nose or his jaws to one side, and all in such a rapid and grotesque manner as generally to excite the humor rather than the sympathy of observers. When the muscles of the neck are involved, the head moves up and down or from side to side in an equally ludicrous manner, the movements being of a tortuous character, arising from the attempt on the part of the patient to counteract them. Speech is generally rendered quite unintelligible, owing to the respiratory and laryngeal muscles being implicated. The respiration is also unequal and irregular, showing that the diaphragm and abdominal muscles are affected.

Other forms or varieties also occur, one of the most interesting of which is that called *hemichorea*, before referred to. In this the disease, or rather the spasmodic movements, are confined to one side of the body, generally the left; this is also the side which, as a rule, is most severely affected in bi-lateral chorea. Of the whole number of cases of *hemichorea* that I have treated, or that have come under my notice in public and private practice, over seventy per cent. have been of the left side.

Another form of the disease is that known as *chorea paralytica*. These are generally cases of hemiplegia, in which the paralyzed muscles are affected with the irregular movements of chorea. Sometimes the disorderly movements set in *after* the paralysis, constituting *post-paralytic chorea*. Such cases are closely allied to the affection termed paralysis agitans. Dr. Bastian says of these cases:—"These choreic movements are not to be confounded with occasional attacks of tonic spasm, occurring in the arm especially, of certain hemiplegic patients who are also subject to unilateral convulsions. Such an attack may exist alone, or it may at other times prove merely the first stage of

a complete fit, with unilateral convulsions and loss of consciousness. The alliance of such spasms is distinctly with the epileptoid condition, whereas the alliance of the more continuous twitchings or clonic spasm, to which we are now more especially referring, is as distinctly with the choreic state. In fact, just as a unilateral chorea may give place to a unilateral paralysis, so may a hemiplegic condition as it disappears favor the manifestation of one-sided tremor, or of an abortive hemichorea."

Differentiation.—One of the most characteristic features of chorea is the inco-ordination of movements. In chorea magna the co-ordinative disturbances appear to originate in certain centres of irritation, and are transmitted centrifugally from the cells of the cerebral cortex to the affected muscles. Hence the spasmodic movements are limited to certain groups of muscles, corresponding to the centres of irritation, and are more irregular, more uncertain, and more paroxysmal, than in chorea minor. In the latter the movements are to a greater or less degree continuous, except at night, when they generally subside; in chorea magna, on the contrary, the paroxysms are just as liable to occur during sleep as when the patient is awake. Again, in chorea magna the muscular movements are not only paroxysmal in character, but are usually preceded by prodromata affecting both the motor and sensory systems, and also the physical functions. These prodromata, however, or what are considered as such, are often only imperfectly developed phenomena of the same general character as those constituting the paroxysm itself. In these cases we may have, in addition to the peculiar spasmodic movements, paresis, anæsthesia, analgesia, ecstasy, and cataleptic or tetanic convulsions. In milder cases the psychical phenomena are not so pronounced, although in most cases the special senses are more or less affected, and there may also exist a loss of consciousness. Others are characterized by hallucinations of the senses, and especially the sense of sight; or the faculties of the intellect or of memory may be disturbed or impaired. Mental disturbances have also been observed in chorea minor, but as a general rule there is not much disturbance of con-

sciousness in this form of the affection. The motor system is the one chiefly implicated, and when the cranial nerves are irritated, may affect the speech. Von Ziemssen, speaking of chorea of the laryngeal muscles, says that by means of the laryngoscope we may "watch the restlessness of the laryngeal muscles, the twitching contractions of the closers, openers, and tensors of the cords." Dilatation of the pupils has been observed in some cases, and when binocular indicates serious lesion of the brain; generally, however, it is a reflex symptom, arising simply from irritation of the sympathetic, from disorder of the digestive organs, spinal irritation, or helminthiasis.

Causes.—The chief predisposing causes are age and sex. Although not limited to childhood, the disease, as already stated, is much the most frequent between the ages of six and sixteen. Previous to puberty, or rather to the congestive period immediately preceding it—that is to say, before the age of nine or ten years in girls, and fourteen or fifteen in boys—both sexes appear to be equally liable to the disease; but after that period it is more apt to occur in the female sex.

The exciting causes are mostly such as give rise to ordinary convulsions, such as fright and other mental emotions, the second dentition, verminous irritation, onanism, derangement of the menstrual functions, anæmia, rheumatism, and "ocular contagion"—that is, the liability of susceptible persons to contract the disease by seeing or imitating it in others. This imitative propensity, if we may so call it, shows that the disease in some of its forms is closely allied to hysteria. In fact, choreic patients generally possess the "nervous" temperament to a high degree, having in most instances inherited it.

The essential causes of chorea are more obscure. The same lesions are found in hemichorea as in epileptic hemispasms and in hemiplegia—namely, venous congestion of the brain and cord, meningeal hemorrhages, softening of the cord, and inflammatory thickenings of the spinal nerves. Hence we find the same groups of muscles affected in hemichorea as in hemispasms. The frequently unilateral form of the disease, and its occasional association with hemiplegia, have been regarded by the majority of British observers, especially Drs. Todd, Rey-

nolds, Parks and Mackenzie, as establishing the cerebral origin of the disease; on the contrary, MM. Carville, Chauveau, and other French authorities, have endeavored to show that the brain is not in any way implicated in the disease, but that it is due exclusively to histological changes in the posterior horns of the grey matter in the centre of the spinal cord. Perhaps some light may be thrown upon this important question by considering the nature of the relation which rheumatism sustains to chorea. Romberg, Grisolle, and others, consider rheumatism and rheumatic affections of the heart as merely accidental complications of chorea; but M. Rogers is of a very different opinion. He says:—"The coincidence of chorea and rheumatism is so common a fact, that it ought to be regarded as a pathological law, just as much as the coincidence of heart disease and rheumatism." This statement is confirmed by the observations of the late Dr. Hughes, of Guy's Hospital, who found that out of 104 carefully observed cases, only 15 were free from cardiac murmur and had not suffered from rheumatism. That the cardiac murmur was due to rheumatic endocarditis, is shown by the fact that out of 14 fatal cases of chorea recorded by this observer, 11 cases exhibited vegetations upon the cardiac valves. Dr. Kirke's experience, also, led him to the conclusion that chorea was connected with chronic mitral disease of the heart, depending upon or associated with rheumatism. The theory is, that portions of the fibrinous vegetations or granules deposited upon the cardiac valves are washed off, while soft and easily disintegrated, and carried into the circulation, and thus find their way as microscopic emboli into the capillary vessels of the cerebral tissue, giving rise to lesions that interfere more or less with the nutrition of the brain. Now, if this theory is correct, we can easily understand that individuals so affected would be much more liable to be brought under the influence of the exciting causes of the disease, and thus account for the frequency with which the two affections are found to be associated. But it seems to me that this explanation is somewhat remote, as well as hypothetical, especially as the very existence of the supposed emboli remains to be demonstrated; and that a more simple and

satisfactory explanation of the connection in question may be found in the pulmonary and cerebro-spinal congestion arising from mitral insufficiency. It is freely admitted that much disease may exist on the left side of the heart without giving rise to urgent symptoms; but such patients are known to be often troubled with dreams and other forms of mental disturbance, and it is therefore reasonable to suppose that the cerebral and spinal motory centres may be sufficiently irritated by it to give rise to the spasmodic movements of chorea.

But although chorea is often of cerebral origin, it is very far from being exclusively so. Dr. Elischer mentions the case of a woman, aged 22, who had attacks of chorea at the ages of eight and sixteen. She became pregnant when nineteen years old, and at the sixth month of her pregnancy the chorea returned and lasted up to her confinement, which was normal. She afterwards became pregnant again, and the choreic motions returned at the fifth month with great severity. Such cases are rare, but not exceptional. Dr. Pratt, at a meeting of the Phila. Obstet. Soc., reported a similar case, and a number of others are on record. These cases are very difficult to manage, and if not relieved by the coming on of labor, are apt to prove fatal.

Any disturbance of the reproductive system may give rise to the reflex phenomena of chorea, as well as pregnancy. Dr. Goewey reports the case of a girl of twelve years of age, in whom the muscular movements became so violent that she had to be tied in bed and watched day and night for fear of injuring herself. The movements did not cease during sleep, and were so violent as to render her helpless. She had to be fed, and sometimes it was impossible for her even to masticate her food. Two years afterwards, when the function of menstruation was established, she recovered her health.

These cases show that the spinal cord may sometimes be the chief seat of irritation, and this is fully confirmed by the anatomical lesions discovered after death. In the case first mentioned there were diffuse changes, affecting not only the thalamus opticus, corpus striatum, the insula and claustrum, but also *granular proliferation* in the connective tissue of the

peripheral nerves and *along the vessels of the spinal cord*. This agrees with the observation of Rokitansky, who also found proliferation of connective tissue in the cord. Cruveilhier, in addition to softening of the occipital convolutions of the left cerebral hemisphere, found *sclerosis of the posterior columns of the spinal cord*.

Dr. Delamater reports an interesting case due to anæmia of the antero-lateral columns of the spinal cord. The characteristic symptoms were: "Considerable pain, burning and aching in the spine, better from rest; great tenderness to slight pressure over the spinous processes in cervical and dorsal regions; not much tenderness or pain from percussion over the spine; no special cutaneous hyperæsthesia; hands and arms paretic." The case yielded permanently to the valerianate of strychnia, 3x trit., given in two grain doses four times a day, during a period of eight weeks.

Injury to the conducting power of the nerves is an occasional cause of chorea. Dr. Cranch reports a case of hemichorea from accidental nerve-stretching. The patient, whose health was perfect in every other respect, raised herself on her elbow when lying, and felt something "crack." The condition lasted nearly three months.

According to Dr. Foster, "a few years ago an eastern physician announced as his belief, that the origin of chorea, in a large number of cases, could be traced to a faulty condition of the eyes. He examined specially the eyes of a considerable number of such patients, and found in nearly every one something abnormal in the refraction. In some cases the muscular inco-ordination was benefited by the wearing of glasses, though in others it had no effect." These cases, however, were no doubt cerebral. The motor-nerves of the eye are intimately connected with branches of the fifth and sympathetic nerves, and hence "it is not difficult to comprehend how any great strain or irritation of the organ of vision may be reflected to other parts of the head and give rise to disturbance there." Not only so, but the deep origin of the fifth nerve has been traced to, and found to be connected with, the pyramidal body and lateral column of the cord, the fibres of which are directly

in the tract of the corpus striatum, which is supposed to be the chief centre of choreic movements. (*See Part I, Chap. III.*)

Prognosis.—Death from chorea is rare, and therefore the prognosis is generally favorable. When it does occur, it is almost always from some fatal complication, such as endocarditis and pericarditis, myelitis, meningitis and encephalitis. It may, however, result from the great intensity of the disease. In such cases the symptoms are violent from the very beginning; the patient can get no rest day or night, but is fairly "worn out" by incessant muscular movements and sleeplessness. Cases which first occur after puberty are generally much more difficult to manage than those that set in early. As a general rule, the disease is quite amenable to treatment, and some even get well without any treatment. Spontaneous recoveries, however, can only take place in very recent, simple and uncomplicated cases, in which the cause is of an accidental or temporary character.

Treatment.—Most cases of reflex chorea will yield readily to the removal of the exciting causes; and as these are far the most numerous, we should, as a general rule, pay more attention to hygienic measures, and the invigoration of the general health, than to the mere administration of medicine. The great majority of choreic patients are anæmic and debilitated; some have been deprived by poverty of a sufficiency of good wholesome food; others have been overworked, either bodily or mentally; while not a few have become debilitated by bad social habits, such as a sedentary life, late hours, and unhealthy stimulation of the nervous, digestive and reproductive systems. These causes are all capable of being removed, and are of such importance in the treatment that they should never be overlooked or neglected. Moral influences, also, should be brought to bear upon the disease, especially when it does not appear to arise from any tangible or removable cause. The patient should, if necessary, be placed under the care of an intelligent, firm, and not too-sympathizing guardian. He should be taught to control his muscles as much as possible, not by force, but by the exercise of the will. He should be removed from all emotional or other excitement;

and not permitted to associate with patients similarly afflicted; neither should his mind be allowed to dwell upon the disease. These measures alone are often found to be productive of great benefit.

Cases arising from spinal irritation (antero-lateral and posterior spinal anæmia) are generally greatly benefited by certain external applications to the spine, especially *Ice-bags* and the *Ether-spray*. The former are recommended by Dr. Hamilton, who allows them to remain ten minutes at a time. I have found the same remedy equally beneficial when applied to the head, in cases where the intense headache and flushed face indicated cerebral congestion. The pounded ice is best applied in a hog's bladder half filled with water, with a folded towel intervening between it and the head. When Ether is used, the spray may be thrown upon the naked back, from occiput to sacrum, as recommended by Dr. Hammond, for ten minutes each day, using for the purpose any ordinary spraying instrument, such as Richardson's. From ten to twenty such applications are usually sufficient to effect a cure in uncomplicated cases. When the brain or medulla oblongata are implicated, the spray should be chiefly directed upon the cervical portion of the spine. I have in some cases obtained excellent results by applying to the tender portions of the spine, where such existed, a strip of cloth saturated with a strong preparation of the fluid extract of *Cimicifuga*, and covered with oil silk. Two years ago I treated successfully a case of this kind, in this manner, in a lady, aged 46, whose attack set in during the menopause, and which resisted every other form of treatment I could think of. Under its use the spinal tenderness and irritation gradually diminished, and in three weeks from the time the first application was made she was well.

Electricity is an agent highly spoken of by some authorities, as Benedict, Meyer, Duchenne, Remak, Butler, Rosenthal, and others. Benedict says that out of twenty cases treated by him with the constant galvanic current, not one failed to recover. On the other hand, such authorities as Hammond, Reynolds, Von Ziemssen, and others, esteem it of but little value in the treatment of chorea.

Medical Treatment.—*Agaricus*.—Chorea of cerebral origin, with congestion to the head, dilated pupils, flushed face, twitchings of the voluntary muscles when awake, but quiet when asleep.

Illus. 28.—Clara R., æt. 13, of scrofulous maternity, slight frame, no sign of developing womanhood, but of uniformly good health. First complained of feeling tired in right arm and leg; would frequently drop her fork when carrying it to her mouth; right leg would sometimes give way in walking. After this condition had lasted several days, there began to be twitching on the right side of the face; she then lost control of the glottis and tongue; could not speak intelligibly, or swallow without great difficulty, especially liquids. After this the convulsive movements became general, progressing steadily from bad to worse, till head and limbs were in constant motion; appliances necessary to keep patient in bed. The pupils were dilated, there were flashes of heat to the head, tenderness from pressure on the last cervical and first dorsal vertebræ, bowels constipated, appetite good. After faithfully trying Bellad., Nux vom., Coccul., Ignat., Cimicif., Stramon., Hyosc., Annn. brom., in the order named, without benefit, and the patient had become so reduced as to suggest a fatal termination, having passed an involuntary stool, I added fifteen drops of *Agaricus* to two ounces of water, and ordered a dessertspoonful every half hour. Next day she was better, and I ordered the third dilution every four hours. Continuing to improve, the next day the *Agaricus* was given every eight hours. In four days from the first dose of *Agaricus* the twitchings ceased and did not return.—*Dr. H. B. Bagley.*

Causticum.—Chorea in scrofulous constitutions, especially where there is a tendency to aphonia, or other paralytic conditions.

Illus. 29.—M. D., æt. 9, had a fall when about two years of age. This resulted in a white swelling, the left knee became ankylosed, and the leg atrophied. About two years ago the lad had an attack of chorea, from which he recovered. About three months since, the disease set in again, involving both sides of the body, but worse on the right side; the speech

M. D.

was also affected. *Caust.*²⁰⁰, four times a day. Improvement began within one week, when the movements were confined to the right side. After another week's treatment, the sounds of the heart were found to be not quite normal, and he was given *Caust.*^{2m}. This was the last prescription, and, so far as I have ever learned, the chorea was permanently cured.—*Dr. H. B. Fellows.*

Cimicifuga.—Rheumatic cases, where the whole body is in constant motion, with loss of speech, or where the menses are suppressed by cold; also in cases resulting from spinal irritation, or where the menstrual functions are deranged, or where the chorea is worse at the menstrual period; also in "cardiac chorea," characterized by irregular, tumultuous and strange movements of the heart, aggravated by emotions, and subsiding during sleep.

Illus. 30.—Ruth, æt. 17, of a weakly, "nervous" constitution; took cold by falling into the water while skating; menses stopped upon her four months ago; choreic movements set in on the left side three weeks ago, and have remained mostly confined to that side; patient greatly troubled by palpitation of the heart. Prescribed *Cimicifuga* θ , fifteen drops in half a glass of water, teaspoonful three times a day. Menses appeared in five days from the commencement of treatment, and the choreic symptoms immediately ceased; no return.—*Hart.*

Belladonna.—Cerebral chorea where hyperæmia exists; also in reflex chorea excited by dentition or pregnancy. Constant agitation, with inability to remain erect; moaning and grating of the teeth; difficult deglutition; uncertain gait; trembling of the tongue; anæsthesia of the fingers; convulsive movements of the lips; incontinence of urine.

Illus. 31.—Child, æt. 5, attacked twenty days ago with choreic movements of both sides of the body; voice hoarse and indistinct; paralysis of throat and legs; constipation; incontinence of urine; restlessness worse at night, with tetanic convulsions.—*Belladonna*, 6th dil., six drops in a glass of water, a teaspoonful every four hours, so benefited the patient that he slept two hours the first night, and on the second night the convulsions ceased. The remedy was continued at intervals of a month, and was followed by a complete cure.—*Dr. P. Bandeau.*

Hyoscyamus.—Choreic movements with imbecility, or dullness of comprehension; derangement of the stomach, with anorexia; variable appetite, weak, perverted or voracious; convulsive twitchings, aggravated by eating; disposition to laugh and perform foolish actions.

Illus. 32.—Alfred H., æt. 7, had been treated allopathically for three months, taking cod-liver oil, Fowler's solution, etc. Complexion fair, blue eyes, light hair, unusually tall and delicate for his age, had never been very strong. Noticed that he had a voracious appetite, eating greedily and hastily twice as much as he ought to eat. He was extremely restless, wandering from one place to another. Dull of comprehension, seemed stupid, difficult to make him understand and reply to questions. At times his face presented an idiotic expression; would have spells of laughing, which evidently he could not control. He had also contracted the habit of playing with his genital organs. The jactitations were principally confined to the muscles of the face, eyelids, left arm and side. Worse during and after meals. After regulating the diet, I prescribed, as the nearest similia, *Hyoscyamus*³, four doses per day. For the first ten days there was no very perceptible improvement; after that he commenced improving, and at the end of six weeks I discontinued the medicine. Five months have elapsed and there has not been the slightest return of the jactitations, and I consider the cure completed.—Dr. G. A. Goewey.

Stramonium.—Twitching of the muscles in different parts of the body, and especially when they act crosswise, as the arm of one side and the leg of the other; choreic movements greatest when awake; deglutition difficult; not disposed to talk, or unable to talk; silly or emotional laughing, singing or acting.

Illus. 33.—A girl, æt. 10, came under my care, pale, anæmic, slender, unable to study much; was attacked with fever, followed by chorea; could not walk or speak; tongue swollen, protruding; constant twisting of the hands, feet and mouth, all producing an idiotic appearance. She entirely recovered in a few weeks, the curative agent being *Stramonium*. I have used this remedy with equal success in hereditary cases developed in the progress of acute diseases.—Dr. J. S. White.

Phosphoric acid.—Great weakness and prostration; jactitation of the muscles, especially in the lower limbs; aphonia from paralysis of the laryngeal muscles; urine milky-looking and loaded with phosphates; great weakness of the extremities, accompanied with anæsthesia.

Illus. 34.—Chorea in a girl of ten years. For some time she had allowed things to fall out of her hands, cups, plates, etc., which the parents attributed to carelessness, and for which they scolded her. Gradually the spasms set in with increasing violence. Every part of the body, from the head to the feet, became affected. The convulsions were frightful to behold. The patient had to be strapped to her bed. She was scarcely able to swallow a drop of liquid. The spasms lasted uninterruptedly day and night. She was utterly unable to articulate a single word. I had been trying various remedies without success, when I examined her urine and found it loaded with albumen (*phosphates?*). She was now placed upon the officinal *Phosphoric acid*, beginning with five-drop doses, three times a day, and gradually increasing the dose; after taking the acid for six weeks, she was completely restored to health.—*Dr. C. J. Hempel*.

Simaruba.—Choreic movements resulting from irritation of the genital organs.

Illus. 35.—*Post coitum*, irregular and uncontrollable movements of the left upper and lower extremities, and of some portions of the face, manifested by grimaces and contortions of different kinds; these symptoms lasted from fifteen to twenty minutes; she could not speak without stammering, and her respiration was very much affected; she also had involuntary discharge of urine and fæces at times during the attack.—Proving of *Simaruba cedron*, as reported by *Dr. S. A. Jones*.

Natrum mur.—Raue advises this remedy in chronic cases of chorea, occurring after fright or suppression of eruptions on the face; paroxysms of jumping high up without taking notice of the things around him, thus sometimes injuring himself; or, jerkings of the right side of the head. The remedy is especially indicated in anæmic and chlorotic cases, attended with thirst and fever.

Illus. 36.—Hannah S., æt. 7, has suffered from general choreic movements and contortions for over two years. When about four and a half years of age she was frightened by a cow, since which time she has been under allopathic treatment for chorea. She is very pale, delicate and anæmic; drinks a great deal of water, which is gulped down in small quantities at a time; the child is feverish, tongue white, mouth frequently sore. Nine weeks ago I placed her upon *Natrum mur.*²⁰⁰, three doses per day. For two weeks there was no apparent improvement. She then began to have some control over her actions, the jerking, especially on the left side, became less severe, and the pallor of her cheeks and lips began to disappear. She has taken no other remedy and is now entirely well.—*Hart.*

Strychnia.—The Valerianate of Strychnia has proved curative in some cases of chorea, especially in those caused by spinal irritation. The indications are: burning and aching in the spine, with tenderness and pressure over some of the spinous processes; ameliorated by rest.

Illus. 37.—Lelia W., æt. 12; slight, rather tall, dark hair and eyes; nervous temperament. Always had poor health; had large scrofulous swellings when fourteen months old, and pneumonia when four years of age; at five years had an attack of intermittent fever, which was cured in two or three months, except that after it, for several years, had continually flashes of heat and cold, all over the body. At eight years of age was attacked with chorea of entire body, sudden twitching, jerking motions of hands and legs, and some grimaces from contraction of the muscles of the face. Contractions not very severe, and quiet during sleep. Has steadily grown worse, and now has attacks of loss of speech, lasting fifteen or twenty minutes; also, at times, will lose consciousness for a few seconds or possibly a couple of minutes; considerable pain, burning and aching in the spine, better from rest; great tenderness to slight pressure over the spinous processes in cervical and dorsal regions; hands and arms paretic. Gave *Valerianate of Strychnia*, 3x trit., a two grain powder four times a day, with a quart of milk per day in addition to the ordinary diet. This treatment was continued for a period of eight weeks, with gradual improvement

from the start. She is now well and has been for the last five months. Case recorded as cured.—*Dr. N. B. Delamater.*

Tarantula.—The special indications for this remedy, according to Lilienthal, are: choreic movements of the right arm and left leg especially, the involuntary movements continuing during sleep.

Illus. 38.—Chorea in a boy, the head, right arm and hand affected, the head drawn downward; involuntary micturition. *Tarantula*³⁰, cured in two months.—*Dr. L. Gaudy, Brussels.*

Illus. 39.—Involuntary muscular movements, irregular and disorderly, limited to the left arm and leg, or to one of them—very seldom the left arm and *right* leg—with grimaces of the mouth. Cured by *Tarantula*, 12th and 200th.—*Dr. F. Firmat, Spain.*

Cuprum met.—Bæhr says this remedy has in his hands cured most cases of chorea. He says it is more suitable to chorea minor than chorea magna, the former very rarely continuing under its use longer than three or four weeks.

Illus. 40.—A man, æt. 70, was attacked with involuntary movements in the arms, which afterwards extended to the legs. The spasms, though violent, were modified during sleep, but did not entirely cease. After vainly trying other remedies for three months, he was cured in six weeks by *Cuprum*, 1x dil.—*Dr. J. Drummond.*

Silicea.—Symptoms of verminous irritation, especially such as arise from the presence of ascarides in the rectum; distorted eyes, pale face, canine hunger, irritation of the nostrils, constipation, œdema of the face and extremities, great thirst, sleep disturbed by frightful dreams, spasms.

Illus. 41.—W. B., æt. 5, is reported to have had spasms occasionally, during two years past, and but five to seven days apart, during the past month; is pale, unconscious, with up-turned eyes. The fit is preceded by violent hunger; he throws his head backward incessantly; picks nose; has pinworms (formerly painful constipation); craves sours; the eyes and legs twitch before midnight; has pain throughout the left side; likes to have his back rubbed; carotid and inguinal glands swell; arms and legs œdematous; pallid, swollen face; trunk

emaciated; green, yellow catarrh, offensive; thirst unrelieved; mutters in sleep; talks about God; the heart sounds irregular; prolonged systole, with loud murmur left of sternum. *Silicea*²⁰⁰, dry, cured.—*Dr. C. F. Nichols.*

Veratrum viride.—This remedy appears to be indicated in those cases where the convulsive action is of the most severe character; the more nearly they resemble eclampsia, the more prompt and effective the remedy. It has cured many cases of chorea magna, of which the following is a fair sample.

Illus. 42.—A child, æt. 12, had been confined to bed for three weeks, and had been under treatment for about six weeks, first for worms, and subsequently for chorea. It is not in the power of language to convey a proper conception of the truly pitiable state in which I found the child. It had slept none, neither taken any nourishment for days. It was evidently dying from exhaustion and inanition. The muscular commotion was violent, universal, and unaffected by sleep; the lips were embossed with foam, worked up by a continued champing of the teeth. One drop of the tincture of *Veratrum viride* was administered every hour. In twenty-four hours I had the gratification to see the symptoms greatly improved; the muscles were much quieter, and the child could swallow without difficulty. At the end of the fourth day all convulsive action had ceased.—*Dr. J. Terry.*

Zincum sulph.—*Dr. T. C. Williams* reports the following case cured by this remedy:

"A young girl, æt. 15, had been complaining of involuntary and irregular movements of the muscles for three or four months before I saw her. She had had all kinds of treatment and chalybeates of many schools, and even from no school, and now had come to me a most horrible picture of humanity. Her whole trunk, her facial muscles, and all her limbs kept a continuous dancing movement, so that she was unable to eat, walk or lie. She was finally given up by her physicians and friends to die. To this, though she had suffered long, she would not submit. Remembering that this disease often occurs before puberty, we would not give her up to this sad fate.

Among the many remedies used in this disease, we selected

Zincum sulphuricum²⁰⁰, and gave no other. We gave it at first two or three hours apart. She commenced to improve; and after ten or fifteen days more we gave it twice in twenty-four hours. She still continued to improve, and after four or five weeks we gave it once in twenty-four. She is now, after a lapse of six months, well and able to attend to her business in a carpet factory, where she is compelled to control her movements, and is normal as to her periodical change."

For the sake of completeness, we will, agreeably to our plan, append a few illustrations of what may properly be called old-school therapeutics.

Illus. 43.—Eserin.—According to Dr. Bouchut, Eserin diminishes the muscular contractility of the small vessels. He gives Eserin or its sulphate in the dose of 3—5 milligrammes three or four times a day, hypodermically, and somewhat stronger per os; but then on an empty stomach. The spasmodic movements diminish during its action, afterwards also during the intervals between one dose and another, and after ten days the cure is finished. Gastric troubles, sometimes even a transient paralysis of the diaphragm follows, which is remedied by administering 5 milligr. subcutaneously. Its action is more certain with hypodermic injections than per os.—*Bullet. de Therap.*, 24, 1875.

Illus. 44.—Congenital chorea.—Dr. Franz Heller relates the following case: A woman who was somewhat anæmic, but otherwise in fair health, was delivered of a male child about the middle of the eighth month. The child appeared weak and pale, and the anterior fontanelle was much depressed. Almost immediately after birth it became affected by clonic spasms, affecting the muscles of the head, trunk and limbs equally. The motions consisted of frequent extensions and flexions both of trunk and limbs, rolling of the eyes, contortions of the face, and protrusion and drawing in of the tongue. They were quite continuous, except during sleep, or when the child was in a bath. During light sleep they persisted in a minor degree, and continued even when the child was drinking. The infant was fed artificially, but rapidly increased in weight and strength. *Chloral* was given twice a day, and had a beneficial effect in

diminishing the violence of the chorea, and procuring long remissions, but the movements did not entirely cease until the child was two months old.—*Wiener Medizinische Wochenschrift*.

Illus. 45.—*Chronic chorea*.—A woman, æt. 46, who for six years suffered from chorea, who had not been able to walk for a year, and was tormented by such incessant and violent movements, that they threw her out of her bed, and who was also unable to sleep, had administered to her as high as 120 centigrammes of the *Bromide of Camphor*. Her sleep became calmer, she remained quietly in her bed, could walk a little, and often remained fifteen or twenty minutes undisturbed by choreic movements. In the same hospital (*Salpetriere*), a woman, æt. 22, was attacked by violent chorea, with hysterical vomiting. The dose given was first forty, and then sixty centigrammes, daily. Her cure was rapid.—*Dr. Bourneville (Progres Medical)*.

Illus. 46.—*Bromide of Potassium*: A very severe case of chorea, occurring in a woman at the eighth month of pregnancy—symptoms not given—cured in eight days by thirty to forty grains a day.—(*Drs. Gubler and Dumont.*)

CHAPTER V.

TETANUS.

Tetanus, derived from a Greek word signifying "I stretch," is a disease characterized by a painful and lasting contraction of the voluntary muscles and diaphragm, alternating with irregular intervals of incomplete relaxation, or of semi-clonic spasm. The disease is often referred to by names employed to distinguish certain marked conditions resulting from the tonic contraction of the muscles; as, first, *trismus* or *lock-jaw*, where there is a rigid closure of the jaws; second, *opisthotonus*, where the head is drawn backwards so that the body is bent in the form of an arch; third, *emprothotonus*, where it is curved in the opposite direction; fourth, *pleurosthotonus*, where the body is curved laterally; and fifth, *orthotonus*, where it remains straight. The last three conditions are very rarely met with in practice.

Tetanus is usually divided by systematic writers into (1) the *traumatic*, (2) the *rheumatic*, (3) the *toxic*, and (4) the *sympathetic*. The first three are sometimes called *symptomatic*, to distinguish them from the last, which embraces all cases arising from fright, or from peripheral irritation in internal organs, such as worms, fissure of the rectum, pneumonia, pericarditis, etc. These will be noticed more at length hereafter.

The great majority of cases are of traumatic origin, and may result from any wound, however trivial, that irritates or implicates any portion of the peripheral nervous system. In infants, it is sometimes due to the irritation arising from the separation of the umbilical cord, and is then called *trismus nascentium*; but as the affection so named is rarely of trau-

matic origin, and most frequently takes the form of eclampsia, we have described it under the head of *Convulsions* (v. *Eclampsia Neonatorum*, Chap. I).

Although tetanus may be caused by injuries that do not produce a breach of surface, it is certain that, in the great majority of cases, it is excited by a wound of some kind; and it will generally be found that a nervous filament has been torn or ruptured. Thus, in a case of tetanus that has just occurred in my practice, where a boy had run the dried stub of a weed into the leg just above the external malleolus, it was found that the external saphenous nerve and the accompanying vein had both been lacerated.

The kind of injury, as well as its situation, has much to do with the occurrence of tetanus in adults. Contused, punctured, and lacerated wounds, such as are caused by gunshot, burns, rusty nails, etc., are far more apt to give rise to it than clean cuts and thrusts; yet it sometimes follows surgical operations, such as amputations, the ligature of arteries, and even the extraction of teeth. On the other hand, the most formidable operations and the most frightful injuries, such as ovariectomy, the crushing of machinery, and the mutilations of the battlefield, have generally escaped this fearful complication. Experience shows that wounds of the hands and feet, especially of the extremities of the fingers and toes, and also the injury of tendons and nerves, are more liable to cause tetanus than those of other parts. Yet, as remarked by Erichson, it cannot well be supposed to be owing to the tendons and fascia that abound there, as it is seldom, if ever, met with after operations for tenotomy, which are so commonly practiced on the feet. It is my belief that the affection is due, in almost every instance, to injury of some kind inflicted upon some portion of the peripheral nervous system; and that the injury generally involves one or more minute nervous twigs, the laceration of which is the immediate cause of the spasm.

The time between the receipt of the injury and the setting in of the disease, varies from a few hours to as many months. Baron Larrey says that after the battle of Bautzen, where the wounded were left exposed to severe cold during the night, he

found on the following morning that more than one hundred were seized with tetanus. In hot climates it occurs, as a rule, much more speedily than in temperate ones. Thus, a negro in the West Indies is said to have perished of tetanus within fifteen minutes after scratching his finger with a piece of china. On the other hand it has occurred as late as the fifth month, and long after the wound has become cicatrized. In most cases, however, it appears within eight or ten days of the receipt of the injury; and when it runs its usual course, terminates fatally within two or three days.

Symptoms.—The disease may set in gradually or suddenly. Occasionally it is preceded by more or less uneasiness, depression of spirits, and fear on the part of the patient; he is seized with an unaccountable sense of danger, which is sometimes augmented by a disturbed state of the digestive organs, or by nervous pains and twitchings in the wounded limb. In other cases it comes on so gradually and imperceptibly, that the patient is not aware of his danger until he experiences a feeling of stiffness in the neck or about the jaws; the immobility of the lower jaw being a symptom that more quickly attracts attention at the outset of the disease than any other. It is a singular fact that the spasm does not commence in the injured part; but, however remote may be the situation of the wound, it always first appears in the muscles supplied by the facial or motor branch of the seventh nerve. The stiffness in the back of the neck, and the unusual rigidity of the jaws, are accompanied with more or less difficulty of swallowing, showing that the muscles of the pharynx are also affected. At this time the symptoms, though characteristic, are not severe; the patient is still able to open his mouth, but not widely, owing to the muscles about the temples, neck and jaw feeling stiff and somewhat rigid; but soon other muscles become implicated, and those about the jaws, as the masseter and temporal, become permanently rigid from tonic spasms, so that the jaws are immovably closed. This condition has given to the disease the familiar name of *lock-jaw*. What is called the “*risus sardonicus*” now sets in; the countenance appears terror-stricken, and assumes an indescribable expression of mental and bodily anguish; the

eyebrows are elevated, the eyes staring, the angles of the mouth depressed, and the features so distorted and immovable as to give the patient a peculiarly aged appearance, heightened as it generally is by the pallor which at this time overspreads the countenance.

As the disease reaches its height, it is marked by tonic spasms of the voluntary muscles, of the most violent and painful character. In this condition the muscles become as hard and rigid as boards, and the limbs are often as stiff as though they were frozen. At times the tetanic rigidity partially gives way, the paroxysm assuming more or less the form of clonic convulsions, jerking and twisting the patient about in the most violent manner. These spasms are much shorter, but proportionally more intense, than the former; and they alternate with periods of comparative relaxation.

The spasms are generally extremely painful, the pain being the same in kind as that which attends ordinary cramp of the extremities, but much more severe. It is said that the tonic contractions are less painful than the clonic seizures, and that even the latter are not always painful; but as a general rule the convulsive paroxysms are attended with the most fearful suffering, the patient dreading their occurrence above everything else. At first they are slight, and happen only at distant intervals; but as the disease progresses they increase in frequency and violence, until finally they occur every ten or fifteen minutes, and sometimes oftener. They become more frequent where the disease is about to terminate fatally, and *vice versa*. Most authors assert that in very severe cases muscular fibres have been ruptured, the teeth broken, joints dislocated, and even bones fractured; but such effects, if they ever happen, are of very rare occurrence; I have never witnessed any of them.

During the state of tetanic rigidity, the muscles of the trunk are implicated, more particularly the extensors of the spine. This gives rise to one of the most common forms of distortion, that of opisthotonus, in which the neck and trunk are bent backwards into an arch, so that the body rests on the occiput and sacrum. In this condition the chest is arched forwards, whilst the cavity of the abdomen is apparently distended. At

a later period the epigastrium is drawn in, the belly being hard and flattened, and the chest expanded. Forward and lateral curvatures of the spine seldom occur.

The permanent contraction of the abdominal muscles, by preventing the descent of the diaphragm, cuts off the supply of air to the lungs, whilst the rigidity of the thoracic muscles contribute still more to embarrass the respiration, by interfering with the act of expiration. The consequence is, the lungs and bronchi become congested, mucus accumulates in the air-passages, and the patient, unable to relieve himself by coughing or by drawing a full breath, is in danger of actual suffocation. This danger will be still farther increased if, as sometimes occurs, spasm of the glottis sets in; for then the air in the lungs remains wholly unchanged, and if not speedily relieved the patient will necessarily die asphyxiated. Tracheotomy has been tried in these cases, but without any decided benefit, the patient being unable to free the air-passages of the obstructing mucus.

Constipation and retention of urine are troublesome symptoms, resulting from spasm of the lower sphincters and the rigidity of the abdominal muscles. It is said that the warm bath will overcome the retention of urine, but the *faeces* can only be brought away by enemata.

The muscles of the extremities are generally the last, as well as the least, to be affected; and those of the upper are less influenced by spasm than the lower, especially the hands and wrists, which frequently escape altogether. For some reason, the extensor muscles are more liable to be affected by tonic spasm than the flexors. Tetanic rigidity occurs only during the period of consciousness; when sleep occurs muscular relaxation takes place, but whether as cause or effect is not fully determined; probably, however, it is the latter, as the same thing occurs when the patient is under the influence of an anæsthetic.

The convulsive paroxysms are peculiar, inasmuch as they closely resemble those produced by strychnia. They are not only predominantly tonic in their character, but they occur, or are reproduced, by every new influence, however slight, which acts as an irritant on the reflex system of nerves. Thus, any sudden noise, such as approaching footsteps, or the open-

ing or shutting of a door, an accidental touch of the person, and even intentional movements, such as an attempt to swallow or speak, are often sufficient to excite them. Althaus says "this is evidently owing to convulsibility of the medullary centre, for the movements are co-ordinated, and the heart's action is generally interfered with. The inhibitory centres of reflex action in the corpora quadrigemina, however, do not under these circumstances invariably lose their controlling influence altogether; for if the patient's attention is drawn to a sentient impression just previous to its occurrence, he is often able to suppress the attack."

Although there is no fever, except in cases complicated with inflammation, the pulse is gradually quickened, rising to 90, 120, and, towards the end, even to 180 per minute. It is also rendered more frequent during the convulsive paroxysm, but becomes slower again after it is over. During the latter stages of the disease the pulse becomes very frequent, small and irregular, owing in a measure to vasomotor irritation. In consequence of this the blood-vessels, it is said, are sometimes so contracted by spasm, that amputation, which has occasionally been resorted to for the cure of tetanus, has been performed without the loss of a single drop of blood.

The temperature of the surface generally corresponds pretty well with the frequency of the pulse, though at first there is a fall of heat, but it soon begins to rise, and continues to increase even for some time after death. The temperature rises at each successive paroxysm, until at the close the thermometer may register as high as 112° F. The subsequent rise is supposed to be due to the rapid coagulation of myosene in the muscular tissue.

The cutaneous surface is usually covered with perspiration, which is often very profuse, especially after violent paroxysms. As a consequence, a miliary eruption (*sudamina*) is apt to be developed. The other secretions are generally diminished, especially the urine, which is usually scanty, high colored, and deposits on standing a large amount of urates.

The intellectual faculties are not affected, except in rare instances, until the close of the disease, when the mind may

begin to wander, as in any other fatal affection. When delirium sets in early, it should be regarded as a very dangerous symptom.

Insomnia and restlessness generally attend the disease, owing partly, no doubt, to the excess of pain, and partly to dyspnœa and anxiety. The sufferings of the patient are also increased by hunger and thirst, especially the latter, which is rendered all the more excessive by the profuse sweats that generally accompany the attack.

It was formerly thought where death took place from sudden arrest of the heart's action, that it was in consequence of cardiac exhaustion; but it is now believed to be due to irritation of the root of the pneumogastric nerve in the medulla oblongata. That it is not due to overexertion of the organ, is evident from the fact that, notwithstanding the violence of the spasms, they are not attended with the sense of fatigue that results from great muscular exertion under the exercise of the will.

It is scarcely necessary to state that the above-mentioned phenomena are not all present in every case of tetanus. The disease assumes every degree of violence, from a slight and temporary stiffness of the neck and jaws, up to those terrible paroxysms in which the whole system of voluntary muscles is involved. The course of the disease also differs in different cases. In some the progress is uninterrupted from first to last; in others the symptoms remit from time to time; and in the most favorable cases they often become intermittent. The duration of the disease is equally variable. The great majority of cases terminate fatally before the fifth day; very few live beyond the fourteenth day, and when they do they generally recover.

Causes.—That a constitutional predisposition of some kind is requisite for the production of tetanus, in many cases, appears from the fact that only a comparatively small number of those exposed to the exciting causes are attacked by the disease. But whether this predisposition consists in a depraved state of health, such as results from bad hygienic conditions, or from other causes, is not yet settled. It is certain, however, that

age and sex favor its production, the greatest mortality being in the male sex, and between the ages of five and forty-five years. If we include eclampsia neonatorum, we find it to be of frequent occurrence among new-born infants, especially in hot climates. With this exception, it is comparatively rare in children under four or five years of age. It is also rare in advanced life. As regards sex, only about twenty per cent. of all cases are females. This is chiefly owing, it is supposed, to the circumstance that females are less exposed to injury than males; at least we find traumatic tetanus to occur much more frequently among men than women.

The exciting causes correspond to the classification before mentioned, namely, *traumatic, rheumatic, toxic* and *sympathetic*. Of these the traumatic is much the most frequent and important; but as it has already been sufficiently considered, little more need be said under this head.

Cold is a potent agent in exciting an outbreak of tetanus among the wounded. We have already referred to its effect upon the soldiers left exposed on the battle-field of Boutzen. Military surgeons agree that a cold night succeeded by a hot day is most apt to excite the disease, and that the vanquished are more liable to be attacked than the conquerors; but whether this results from the mental depression consequent on defeat, or from receiving less care at the hands of the surgeons and nurses, is not certain; probably, however, both these circumstances influence the result.

Rheumatic tetanus generally comes from exposure to cold and damp. Sleeping on the cold, damp ground, or living in low, damp situations, are the usual causes of this form, which is generally very slight, being limited to a feeling of stiffness about the neck and jaws; but, like other forms of the disease, when fully developed it is severe and dangerous to life. This is said to be especially the case in tropical countries, where it is most prevalent, and where a cold bath, or the drinking of very cold water, when perspiring, is apt to produce it.

What is called *toxic tetanus* is excited by such agents as strychnia, brucia, mephitic gases, etc. We have already described a case of this kind under the head of *eclampsia toxica*,

where it more properly belongs (v. *Illus.* 19). The symptoms produced by these poisons do not exactly correspond with those of true tetanus, there being less permanency of the muscular rigidity and a predominance of convulsive action.

Sympathetic tetanus is that form of the affection resulting from such causes as fright, intestinal worms, ulcers of the rectum, urinary calculi, a dead foetus in the uterus, pleurisy, pericarditis, enteritis, etc. Such cases are undoubtedly rare, but they have been witnessed by too many competent observers to be altogether discredited.

The efficient cause of tetanus, according to Dr. Clarke, is "a morbid condition of the peripheral nerves, by which the excitability of the cord is increased, either reflexly, by action of the bloodvessels excited by those nerves, or by extension of the state of irritation along the nerves to the substance of the cord itself. The grey matter of the cord then becomes unduly excitable, from the hyperæmic state of its bloodvessels, with the exudations and disintegrations resulting therefrom. Other observers have thought tetanus due to blood-poisoning, the spasms resulting from certain changes in the muscles, which were owing to the poisoned state of the blood. Romberg's theory of increased reflex excitability of the cord does not explain all the occurrences in tetanus, although it amply accounts for the symptoms of strychnia-poisoning. In cases of injury to the upper portion of the spine or the head, there is most probably a direct pathological effect produced upon the convulsible centre in the medulla. In other cases, where the injury is more peripheral, there is direct transmission of the irritation of the sensitive nerves by neuritis ascendens; and finally, where no such changes are discovered in the peripheral nerves, we must assume that the peripheral irritation is reflected to the vasomotor centres in the medulla oblongata, and perhaps also in the spinal cord. That the medulla generally suffers is shown by the affection of the jaw, tongue and pharynx, the motor nerves of which have their roots in that organ; and also by the tetanic convulsion showing the character of co-ordination."—(*Althaus.*)

Pathology.—Rokitansky, Benedict, Dickinson, Clarke, and

others, have described various lesions of the cord in tetanus, some or all of which may or may not be the true cause of the disease. If they are not the effects of the functional excitement of the cord, as believed by Dr. Clarke, then tetanus can no longer be considered a purely functional disorder. The former observers discovered proliferation of connective tissue between the white matter of the cord, destruction of nerve-cells, fatty and amylaceous degeneration, disorganization of the cord by abnormal deposits, hyperæmia of the anterior cells, and granular transformation. Leyden, however, showed that some of these changes were only apparent, being due to the mode of investigation pursued, and that the others were far from being constant. But Dr. Clarke discovered unmistakable lesions in the six cases examined by him. Some of these were similar to those already noticed, especially hyperæmia, effusion and granular degeneration; but the chief alteration was one of softening, extending in streaks and irregular areas of disintegration in the grey substance of the cord, from the origin of the second cervical nerves through the cervical enlargement, the lower portion of which exhibited, chiefly in the neighborhood of the canal, marked disorganization, varying from a condition of softening to one of complete solution. The same appearances were discovered in the dorsal and lumbar portions of the cord, in the former of which were also found extensive extravasations of blood extending along the entire lateral part of the grey substance, and alternating with small areas of disintegration. As already stated, Dr. Clarke does not attribute these changes to functional excitement of the cord, because they chiefly occur where the nerve-cells are scanty, whilst the cells which give origin to the motor nerve-roots remain unaltered. He therefore refers the lesions in question to disease of the bloodvessels, which are usually found to be more or less dilated and disintegrated. Neither does he think they can be the cause of the spasms, because they are found also in cases of paralysis. Hence, as before stated, he attributes the disease to the morbid condition of the peripheral nerves, which, as shown by Lepelletier, are affected by neuritis ascendens, or by traces of inflammation, thickening and dis-

organization in the affected nerves. In protracted cases the muscles are often in a state of fatty degeneration, besides being more or less lacerated, anæmic, and infiltrated with minute extravasations of blood.

Prognosis.—The prognosis in well-developed cases is almost uniformly bad; though if it occurs after ten days from the receipt of the injury, or if the symptoms continue beyond two weeks without resulting fatally, the chances of ultimate recovery are favorable. The most fatal cases are those which occur in the puerperal state. Such as are attended with frequent convulsive seizures are generally fatal, the patient either dying during a fit from asphyxia, or sinking into such a state of utter prostration, delirium and coma, as to bid defiance to all treatment. Paralysis of certain muscles of the extremities, and also of those supplied by the portio dura, is apt to remain after recovery, which is always gradual and more or less protracted. The paralysis of the portio dura is supposed to be due to ascending neuritis, and that of the extremities to a like condition observed by Dr. Clarke in the cord.

Treatment.—The only accessory measures deemed worthy of mention, aside from the necessary surgical procedures, are ice-bags or hot-water-bags to the spine, and protracted sweating. The former are said to have afforded relief in some cases, and the occasional benefit from the latter is well illustrated by a case treated in Mr. Wagstaffe's clinic, in 1877. A covered frame-work was adjusted to the bed, and hot air passed inside by means of a tube connected with a heated cylinder. The temperature was raised to 140° F., and maintained for rather more than three-quarters of an hour, by which time the patient became faint. The head was covered during this time with blankets, leaving him only breathing room through them to the external air. He continued to sweat profusely for about two hours after the bath, and during this time was covered with blankets. The sweating was repeated in the evening; and this treatment, by morning and evening sweating, was persevered in for twenty-three days, after which time it was only necessary to use it once a day for a week.—(*Erit. Med. Jour.*, Oct. 20th, 1877).

Belladonna.—Stiffness of the jaws, with convulsive movements, dilated pupils, difficult deglutition, lancinating pains, staring eyes, spasmodic respiration, restlessness, involuntary discharges, insomnia, cerebral and spinal hyperæmia.

Illus. 47.—A man, æt. 60, trod upon a nail two weeks ago; jaws now closely locked, deglutition difficult, flexor muscles cramped, abdomen tense and rigid; sudden noises, a touch, or an attempt to move, speak, or drink, would excite a spasm. The affected limb was considerably swollen. The wound healed, leaving only a tender, dark spot, from which, on being reopened, issued a few drops of dark blood. Bacon was applied locally, and *Belladonna*³⁰ given internally; in three days the patient was entirely relieved.—*Dr. A. Angell*.

Cicuta virosa.—Trismus, with spasms of the œsophagus, paleness of the face, rigidity of the affected muscles; whitish ulcers on the border of the tongue.

Illus. 48.—C. M., æt. 12, run a nail in the bottom of his foot. In a week the wound healed and no evidence of disease was manifest for two weeks, when the rectus muscle of the abdomen became rigid, soon followed by contraction of the muscles of the leg on the side of the wound. In a few days there was trismus, and a full developed case of tetanus.

Treatment: Cicatrix and surrounding tissues of the wound cauterized deeply. We gave at different times: *Bellad.*, *Nux vom.*, *Hyosc.*, *Acon.*, etc.

My prognosis was unfavorable, as the case was severe and no evidence of improvement by the treatment. The symptoms were: trismus; legs and arms flexed and rigid; abdomen distended and rigid; spasms every half hour; edges of the tongue, as far as could be seen, covered with white ulcers; spasms of the œsophagus; paleness of the face during the spasm; spasms of a tonic character.

Cicuta virosa, 3d dil., was now prescribed, chiefly on the strength of the last four symptoms. An improvement was observed within twelve hours, which continued until he was perfectly well.—*Dr. S. R. Beckwith*.

Gelsemium.—Stiffness of the jaws; pain and stiffness in the back of the neck; spasmodic sensation in the pharynx and

oesophagus, with difficulty of swallowing; constrictive pain about the chest, with difficulty of breathing; dilatation of the pupils; cramps in the legs; involuntary discharges of fæces and urine; convulsive action of the voluntary muscles.

Illus. 49.—B. S., aged 13, run the stub of a dried weed into his left leg just above the ankle, lacerating the external saphenous vein and nerve. Wound was treated by the parents with bacon; it suppurated freely and finally healed, with the exception of a small fistulous opening, which, owing to the objections to the use of the knife, was treated by injections of iodine. On the third day of this treatment—the ninth after the accident—stiffness of the jaws and neck set in, with difficulty of swallowing, moderate fever, some headache, a coated tongue, and darting pains in the wounded leg. Prescribed an emollient poultice to the sore, and gave *Bellad.*, 3d dil., every hour. Next day worse; jaws tightly locked; abdominal muscles rigid; head bent backward and deeply buried in the pillow; pupils dilated; eyes staring; pulse hard, 96; breathing irregular and hissing; extensor muscles of the limbs contracted, hard and rigid; fistulous opening puffed and tender; wounded limb jerks and twitches whenever it is touched. Laid open the fistula, with a curved bistory, to the extent of three inches in the course of the affected nerve and vein, and reapplied the poultice. Prescribed *Gelsemium* θ , gtts. xv, to half a glass of water, a teaspoonful every hour. Next day much better: pulse 75, soft; no opisthotonus or trismus, but some soreness about the neck and jaws. Continued the treatment during the next three days, but at more distant intervals. Patient made a good recovery and in two weeks attended school.—*Hart.*

Phrysostigma.—Paralysis preceded by twitching or trembling of the muscles; dilatation of the pupils; syncope or tendency to fainting; trembling convulsive action of the respiratory muscles; alternate dilatation and contraction of the pupils, the former corresponding with the period of spasm and the latter with the period of quiescence.

Illus. 50.—Feb. 3d, 1877, was called to attend a man who had fallen head first from a heavily-loaded wagon, one of the wheels

of which passed across his face, producing a severe scalp wound, extending across the entire occipital region and partially tearing off the right ear. The man, who was in a cold and semi-conscious condition, was evidently laboring under a severe concussion and shock of the brain.

On visiting the patient four days after the accident, I found he had passed a very restless night; had muttering delirium; escape of blood and pus from the nostrils and mouth so copious as to threaten to suffocate him, exciting a spasmodic cough, followed by severe tetanic spasms and marked *opisthotonus*, which now extended as far as the heels, most apparent when induced by paroxysms of coughing. Between these periods there was a more quiescent state. Resp. 28; pulse 130; temp. 104°. The *planta fascia* and toes of both feet, *tendo achilles* and *gastrocnemius* muscle very contracted and tense, especially during the spasms; involuntary emissions of urine; contraction and dilatation of the pupil of the uninjured eye, the former corresponding with the period of quiescence and the latter with the period of spasm. Prescribed *Physostigma*, 6th *trit.*, one grain every two hours. Ordered also hot water to the spine by means of Chapman's Spinal Bag, to be renewed every forty minutes. These applications seemed to alleviate and quiet down the spasms. Patient gradually improved under this treatment, so that two days afterwards the pulse was down to 100, temperature 90° and respiration normal. Remedy to be given only once in four hours when awake. Patient continued to improve under proper surgical treatment, and on March 15th was able to resume his usual duties.

I have noticed the symptom, *alternate contraction and dilatation of the pupil*, in three former cases of traumatic tetanus, all of which were cured by the internal administration of Calabar Bean.—*Dr. C. H. Von Tagen.*

Tetanus is such a fatal disease, that we deem it our duty to append the most approved allopathic treatment.

Illus. 51.—Amyl nitrite.—The case we are about to record is the first in which Amyl nitrite has been used alone and successfully, and its action observed. It was first given on the sixth day after the accident, and about forty hours after tetanus first

set in. Before the three drops had half evaporated, the heart's action became more quiet, and continued to become more so at each subsequent inhalation. Towards the close of the treatment the pulse was down to about 80, although six days after he had ceased to inhale five drops twice daily, the heart's action was 132 and tumultuous. Gasping and yawning was produced at each inhalation, and a marked improvement was at once manifested in all his symptoms. Ten days after the inhalations were resumed he had another spasm, and the dose was then increased to five drops twice daily. Four days afterwards the supply of Amyl gave out in the hospital and was not replaced until two days afterwards. During this time he grew rapidly worse; the opisthotonus and the risus sardonicus both returned, and his pulse and temperature rose rapidly. On recommencing the inhalations he felt better almost immediately, and from that time progressed steadily to complete recovery. The remedy was discontinued on the forty-sixth day after the first dose was administered, the patient appearing as well in every respect as before the attack, except having a feeling of weakness.—*Philad'a Med. Times*.

Illus. 52.—*Calabar Bean*—H. W., æt. 47, a gardener, received a wound between the thumb and index finger, from the cut end of a laurel bush branch. The wound, which was about half an inch deep, was carefully cleansed and kept open for a fortnight. Two days after its closure tetanus set in, and five days later he was admitted into St. George's Hospital, under the care of Dr. Dickinson and Mr. Pollock. At that time he was in a condition of opisthotonus, and spasmodic contractions of the muscles of the neck and face, lasting about five seconds, occurred ten or twelve times a day. He was first put on twelve grains each of chloral hydrate and bromide of potassium, with temporary improvement. Three days after admission, however, he was much worse, the spasms recurring five or six times a minute. One-eighth of a grain of extract of *Calabar bean* was injected subcutaneously every hour for eight successive hours, after which the spasms occurred at intervals of about two minutes, and were less severe. He felt easier and slept some. Two days after this the injections were given every

hour and a half, alternately with a pill containing one-sixth of a grain of the extract. A few hours after, the pills and injections were repeated every two hours. Two days later, the improvement still continuing, the injection was increased to one-fourth of a grain. The next day the treatment was discontinued for five hours, but as the spasms became more frequent, it was resumed as before. On the following day the spasms did not occur, except when the fauces were tickled, and the injection was given only every four hours. One week afterwards there was a slight return of spasm. At the expiration of another week the spasms ceased altogether, but the patient continued to have some pains in the back for the next three weeks, and his legs were still weak and stiff when, just two months after entering the hospital, he was sent to the convalescent home. He was seen some months afterwards in good health.—(*Lancet*.)

Illus. 53.—*Chloral hydr. and Potass. brom.*—A boy, æt. 14, was seized with traumatic tetanus. Ten grains of *chloral hydr.* with twenty grains of *bromide of potassium*, in solution, were given every three hours, and on the next day every two hours. All kinds of delusions ensued. The most marked amelioration of the symptoms was manifested on the third day after taking the medicine. The patient took 1140 grains of chloral in sixteen days, with the result of the spasms leaving him in eighteen days from the date of the seizure.—(*Dr. J. Carruthers*.)

CHAPTER VI.

HYDROPHOBIA.

Hydrophobia is a spasmodic disease produced by inoculation with the poison of a rabid animal. The poison generally enters the system through a wound made by a mad dog, or from the contact of its saliva with an abraded surface.

History.—Rabies, or the hydrophobia of dogs, has been known from the earliest times. It is true, no allusion is made to it in the Scriptures, but that may be readily accounted for by the fact, that the disease has never existed in either Syria or Egypt. On the other hand, canine madness was well known to Homer, who, in the eighth, ninth and thirteenth books of the Iliad, not only expressly mentions it, but very appropriately applies it to Hector's indiscriminate slaughter of his enemies. Human hydrophobia was well known to Democritus, the friend and contemporary of Hippocrates; it is also referred to in the works of Polybius and Aristotle, although the latter, singularly enough, did not believe that the disease could be communicated from animals to man. "Dogs," says he, "are subject to madness, cynanche, and a sort of gout, or lameness. The first of these diseases renders them rabid or furious, and all the animals which they bite become equally affected with madness, with the exception of man. The malady occasions the death of the dogs affected, and of every animal that is bitten by another animal, excepting man." Not to dwell upon this part of the subject, it is sufficient to say, that the disease has been very accurately described, and much learned speculation on the subject indulged in, by the best medical authors, from the days of Aristotle down to the present time.

Symptoms.—The majority of systematic writers divide the disease into three periods: first, the stage of *delitescence*, second, the stage of *recrudescence*, and third, the stage of *spasm*.

First stage, or delitescence.—This stage is not usually marked by any very prominent symptoms. The wound, which seldom involves any extensive laceration, generally heals readily, leaving a cicatrix which presents nothing remarkable or peculiar in its appearance. Sometimes more or less pain is felt in the cicatrix for a considerable period after the wound has healed, but as this is liable to occur in the seat of all wounds of like character, whether simple or specific, it cannot be regarded as characteristic of this affection. Occasionally a slight fever sets in soon after the accident, and continues until the breaking-out of the hydrophobia, which in these cases supervenes within a few days. Generally, however, the period of delitescence is rarely less than six weeks, or greater than two years. In the majority of cases, nothing unusual is noticed in the appearance or demeanor of the patient, during the time which intervenes between the healing of the bite and the second stage. It is true, the subject of the wound, apprehensive of danger, sometimes betrays more or less anxiety in his countenance, besides being retired, gloomy, and perhaps somewhat irritable; but as such symptoms would be likely to result from simple consciousness of the peril already incurred by the accident, they cannot properly be regarded as having any other significance.

Second stage, or recrudescence.—The patient now experiences more or less pain or uneasiness at the seat of the wound. The cicatrix itches or tingles; twinges of pain are felt in it, or dart from it along the affected limb; sometimes there is a feeling of stiffness or deadness in the part, as though partially paralyzed; or the cicatrix may become red, swollen, and even livid; and sometimes it reopens, and discharges a peculiar ichor. As recrudescence advances, the morbid sensations extend from the original seat of injury towards the trunk. These pains always appear to follow the course of the nerves, and are especially apt to shoot from the wound to the region of the heart. These symptoms generally set in only two or three days before

the appearance of the spasm; it is rare for them to occur more than a week before hydrophobia supervenes.

Third, or spasmodic stage.—As compared with this stage, the preceding ones present the appearance of quiescence; hence the group of symptoms constituting this stage is generally regarded as representing the entire disease known as hydrophobia. In strict accuracy, however, this is but the closing stage of the malady; and were it always so regarded in practice, perhaps greater success would attend its treatment. However this may be, seeing that the paroxysmal stage is that to which the attention of the physician is chiefly directed, it is not strange that he should come to regard it as the only essential part of the disease.

Within a few hours or days after the occurrence of the local irritation, during which time the patient experiences a sense of uneasiness and anxiety, attended with chills and heat, giddiness and a general feeling of illness, the special symptoms of the disease begin to manifest themselves. The most constant and characteristic of them may be conveniently arranged under three heads:—1. *Spasm of the muscles of the throat and chest.* When the disease fairly sets in, the patient experiences pain and stiffness about the neck and throat, and when he attempts to swallow fluids, he finds himself utterly unable to do so; this, with the added consciousness of the awful nature of his disease, excites a horror of all liquids, and constitutes the most distinguishing feature of the malady. Even the mere sight or sound of fluids will frequently bring on a paroxysm of choking and sobbing; and so will the reflection of a mirror, or of any object having the appearance of a liquid, the idea of which is immediately associated in the mind of the patient with his inability to swallow fluids, and re-excites the spasms that cause him so much mental and bodily suffering. —2. *Extreme sensibility of the surface of the body.* Thus, a gust of wind across the face, a touch of the fingers, or the slightest cutaneous irritation, is sufficient to bring on a paroxysm. —3. *Mental distress and agitation.* The patient labors under the most extreme nervous excitement, growing out of the terrific circumstances in which he is placed. His feelings are neces-

sarily wrought up to the highest pitch, and he imagines, perhaps, that he is about to be smothered or strangled, if not by the disease, at least by his attendants, whose rough manners and excitement are frequently but illy calculated to allay his suspicions. To these symptoms may be added a remarkable feeling of buoyancy, or sense of bodily lightness; an intolerable thirst, every attempt to allay which by drinking provokes a new and more severe paroxysm of convulsions, which often involve every muscle of the body; the secretion of a remarkably viscid saliva, which itself tends to excite the convulsive fits; vomitings of greenish or dark-colored matter; distension of the stomach and bowels with gases; great pain in the region of the diaphragm; restlessness, fever, and exhaustion. As the paroxysms increase in violence and frequency, the face becomes livid, the muscles tremble, and when at length the system becomes completely exhausted, a more prolonged paroxysm ends the unequal struggle.

Causes.—It seems strange that the etiology of a disease which has been observed for thousands of years, should still remain unsettled; yet there are those who, even at this day, claim that hydrophobia is purely a disease of the imagination; that the fears of the patient are the only cause of the paroxysms; and that inoculation with an animal poison, or the virus of Rabies, has nothing whatever to do with it. This is no new notion. Aurelianus, who wrote nearly seventeen hundred years ago, says in his treatise on hydrophobia, that many intelligent persons of different ages and countries have utterly denied the existence of hydrophobia, except as a maniacal affection, deriving its sole origin from the imagination of the patient. But if this be so, how, we ask, are we to account for its occurrence among mere infants, who cannot possibly labor under any such mental impression. Others again are delirious or idiotic; persons whose mental terror, if they have any, is neither constant, nor likely to be any greater on one subject than another. To these unanswerable objections may be added the general course of the disease, namely, that the characteristic symptoms usually follow very soon after the patient has been bitten by an animal laboring under a similar

affection; that the affected persons *always* grow worse, and finally die before the end of a week; and that the same group of symptoms are rarely preceded by any other cause. These considerations force upon us the conclusion that, as stated by Dr. Bardsley, "there is at least one form of hydrophobia of which the only constant known antecedent is the bite of a rabid animal; and this, therefore, in the present state of our knowledge, we are compelled to consider the cause till another is shown." On the other hand, it must be confessed that instances occasionally occur, in which hydrophobia, or a disease closely resembling it, appears to be communicated by a non-rabid animal. Thus, Dr. Moritz related to the St. Petersburg Med. Society the case of a boy, who died with well-marked symptoms of hydrophobia, six weeks after being bitten by a dog, the dog, up to the time of the boy's death, never having exhibited any signs of rabies. A similar case was communicated to him by a colleague, of a boy who also died hydrophobic after being bitten by a cat, the cat remaining, to all appearances, well. Dr. Severin had also met with a case of a child dying, who had been bitten by a dog that continued well. He had inoculated rabbits with saliva, blood and pus taken from this child, without producing any results.—(*Med. Wochenschr.*, Nov. 11, 1877.)

But such exceptional cases no more establish the mental origin of hydrophobia, than they invalidate the arguments already adduced in proof of its general origin from rabies. On this point the author first quoted, aptly says: "A dread of pestilence is not more strongly implanted in the minds of men than the fear of hydrophobia; this fear is not superstitious, for mankind came to a knowledge of this direful malady when the cities of Greece, Asia, Sicily and Egypt abounded with medical schools, and with professors alike distinguished by their cultivation of the healing art and their improvement of general philosophy. A coincidence of belief so universal cannot fairly be ascribed to accident, and is no more to be neutralized by the possible circumstance *that other causes* also may produce these symptoms, than the operation of marsh miasm in producing ague, from the well-known fact that other causes may

also induce that disease, or reproduce it in the system after it has been to all appearances subdued for many years."

It is believed by many that the disease may occur spontaneously in man, as it undoubtedly does occasionally in the lower animals, but there is no conclusive evidence that it ever originates in the human subject in this manner. As for the lower animals, it is possible that close confinement, unwholesome food, want of fresh water, and other like causes, may have something to do with its developement among them.

Aitken says, "the susceptibility of the human subject to the poison is by no means universal, for only ninety-four persons are known to have died out of one hundred and fifty-three bitten, making the chance of escape nearly as three to two." We cannot admit, however, that this is a fair measure of man's susceptibility to the influence of the poison. A large proportion of those bitten no doubt escape inoculation in consequence of the saliva being wiped off by the clothing, or prevented in some other way from entering the circulation through the wound. Moreover, we know that the saliva is perfectly innocuous when applied to the unbroken skin, although, according to Youatt, it may enter the system by simple contact with mucous surfaces. The general belief, however, is, that no danger is incurred by sucking the wound, so long as the poison does not come in contact with any raw surface.

Pathology.—Although the morbid anatomy of hydrophobia has been studied long and earnestly, it has not yet been shown that any absolutely characteristic lesions occur in any portion of the nervous system. Evidences of hyperæmic and inflammatory action are not uncommon, but they are by no means constant, and may more properly be regarded as the consequences than as the cause of the disorder. That they are not essential to the existence of the disease, is shown by the fact that, in several recorded cases examined by the most eminent pathologists, no morbid appearances of consequence have been detected in any portion of the body. Dr. Kudnow, however, a Russian professor of pathological anatomy, says the disease spends its force chiefly upon the kidneys, "the lobes of which undergo fatty degeneration, and the parenchyma destructive

inflammation." If, as it is reasonable to suppose, the kidneys become organically diseased in consequence of being the organs through which the poison of hydrophobia is being eliminated from the system, the hypothesis would at least be in harmony with what is known regarding the origin of the disease.

Rabies in the Dog.—The earliest symptoms of hydrophobia in the dog, according to Youatt, are: a marked departure from his ordinary habits, such as picking at straws, chips and other rubbish; sullenness; loss or perversion of appetite; licking cold surfaces, such as iron or stones; lapping his own urine; frequent change of posture; striking with his paws at the corners of his mouth; snapping at this and that object which happens to be in his way, and especially at dogs, which he endeavors to avoid; pursuing a straight, unchangable course along the street; exhibiting a suspicious and haggard look, with perhaps some redness and watering of the eyes. But one of the earliest and most constant symptoms is a *change of voice*, every sound of which is unnatural. In a short time the fauces become red and inflamed; there is very great thirst, without any dread of water, as in man; the saliva is copious, viscid, and adheres to the mouth as a thick foam. Respiration becomes difficult and panting; the tongue protrudes from the mouth; and there is more or less fever. The degree of ferocity varies from a mere repugnancy to control, and a readiness to be roused to extreme rage on any attempt at intimidation, to unprovoked fury, in which the dog flies at every creature he meets or that happens to come in his way. In the last stages of the disease, the animal droops, the eyes look dull, and the hind legs and muscles of the jaw become paralyzed. Vomiting frequently accompanies or precedes the disease, tremors are frequent, and death from convulsions and exhaustion takes place in from four to six days.

Treatment.—The best course to pursue after a person is bitten by an animal supposed to be rabid, is to immediately have the wound sucked as forcibly as possible; then, instead of excising the wounded part, which greatly endangers the infection of the freshly cut parts by virus from the blade of the instrument, the pure *nitrate or chloride of silver*, or other caustic,

should be thoroughly applied to every recess of the wound, so as to decompose the virus, and destroy the vitality of the affected tissues. This is the plan recommended by Youatt, who had himself been bitten several hundred times by rabid dogs, without becoming infected after using the caustic in this manner, and previous to which he never deemed it too late to safely make the application. He advises the chloride of silver, instead of the nitrate, as being the most effective caustic for this purpose. If the case is a very suspicious one, and the patient can be induced to submit to it, it is doubtless safer to apply the actual cautery, the red-hot, or rather white-hot iron, being little, if any, more painful than the treatment of the wound with nitrate of silver, or other efficient caustic. After the operation, a poultice should be applied until sloughing occurs, after which the wound may be kept discharging by any simple stimulating ointment, such as carbolated vaseline, until it fills up with healthy granulations.

Dr. Buisson—a French physician who was accidentally inoculated with the saliva of a person dying with the hydrophobia, and who cured himself by taking a steam bath, not with the intention of healing, but to suffocate himself—recommends the vapor bath as a preventive as well as a curative measure. He says he has attended more than eighty persons bitten by mad dogs, and all have been saved by this method. He recommends, as a preservative remedy, that the person bitten be made to take seven Russian steam baths, one each day, at a temperature of from 57° to 63° C.

Of the many other measures that have from time to time been extolled for their prophylactic virtues, we shall only mention two, namely, the application of strong *liquor ammoniæ* and the administration of *cedron*. In the *Gazetta Italiana*, Dr. De Stefano relates three instances of persons bitten by the same rabid dog. The first case was that of N. Rosa, æt. 60. The dog bit him severely on the back of the hand. The doctor was in the apothecary shop where the bitten man at once applied for relief. De Stefano immediately had recourse to pledgets of lint, dipped in liquid ammonia, having first washed the wound thoroughly. When they became dry, other pledgets

similarly treated, were substituted for the first. In ten days the wound was quite healed. The second case was that of Ant. Capiraso, about ten years old, bitten by the same dog in the left leg. The doctor treated the boy precisely as he had treated the man, and with a like successful result. The third case was that of Teresa, æt. 60, bitten by the same rabid animal. The poor woman, unaware of her great peril, sought for no treatment, and consequently received none. After the lapse of six months, symptoms, as well marked as possible, of hydrophobia appeared, and the patient died. As ammonia is known to be an effective antidote to various animal poisons, these cases appear deserving of more than ordinary attention.

According to the *Therap. Gaz.*, it is asserted by the natives of Central America that not a single fatal result from hydrophobia has ever been known among them, though the whole country seems to be overrun with dogs. When anyone there is bitten by a dog, a tea is made of *Cedron*, and that is all that is taken. Dogs are known to eat of the bean at times, the same as a cat does of catnip. The natives positively assert that *Cedron* is an effectual preventive of hydrophobia.

The most reliable curative remedies appear to be: *Belladonna*, *Scutellaria*, *Euphorbia* and *Electricity*.

Belladonna.—The pathogenesis of this remedy exhibits the characteristic symptoms of hydrophobia to a surprising extent, so much so as to lead Hahnemann to declare that it was the very best remedy for the disease. This opinion seems to have been verified by experience.

Illus. 54.—The wife of a man who had been bitten by a mad dog six years before, and died, had had coition with him every night until the fifth day of his sickness. Her appearance was wild and haggard; she complained of sore throat, inability to swallow, burning pain in the stomach, difficult respiration, and giddiness. The pulse was rapid, but not strong; pupils dilated; throat red and shining; manner hurried and nervous. Prescribed *Belladonna* and *Arsenicum*. In the evening I found her holding fast to the bed, "to keep from flying out through the top of the house." Gave *Belladonna*¹, every two hours, for three days, after which I gave the third. The first three days

the symptoms were aggravated; on the fourth day I gave Lachesis and Cedron, but lost ground, and again gave Belladonna. On the sixth night she had the first sleep since her illness.—(Dr. S. E. Adams.)

Scutellaria.—This remedy at one time enjoyed a very high reputation, both as a prophylactic and curative agent, in hydrophobia; and although less reliance is now placed upon it in the treatment of this formidable disease, its efficacy in such cases seems as well attested as that of any remedy known to the profession. Dr. Hale says he gave *Scutellaria* to a patient for a nervous affection, and its administration was always followed by "spasmodic or constrictive closing of the jaws, and a tightness of the muscles of the face." This shows that the remedy is homœopathic to one of the most characteristic symptoms of hydrophobia.

Illus. 55.—Dr. Vanderveer, who, according to Hale, is said to have discovered the prophylactic powers of *Scutellaria* against hydrophobia, claims to have prevented four hundred persons and a thousand cattle from becoming hydrophobic, and his son is said to have relieved or cured forty persons who had been bitten, by the use of the same remedy. Rafinesque says: "A physician, bitten by a mad dog, has assured me that himself, alone, had avoided the disease by using it, while others bitten by the same dog, died." Dr. Hale pertinently adds: "It would seem that there ought to be some grains of truth among so much testimony."

Euphorbia.—Various species of this plant have become noted in different countries for possessing a protective or curative action in hydrophobia. The pathogenesis of *Euphorbia officinarum* contains the following characteristic symptoms: Constant chilliness and shuddering; burning in the throat, with trembling anxiousness, inclination to vomit, and ptyalism; spasmodic tightness of the muscles; thirst for cold drinks; paralytic weakness of the lower extremities; anxious and apprehensive mood; serious and taciturn disposition; temporary craziness; symptoms aggravated by contact.

Illus. 56.—The *Euphorbia villosa* is said to be specific in doses of from five to thirty drops. (Ruddock). Amongst the reme-

dies vaunted against rabies, the "znakers," a kind of wizzards in the south of Russia, employ the root of *Euphorbia palustris*. (*Gaz. le Kievlanine*, No. 38, 1874.)

Illus. 57.—Faradization.—A veterinary surgeon, although he had excoriations on his fingers, made a post-mortem on a dog, who perished from hydrophobia, and examined particularly the mouth. The saliva infected him and three months afterwards lyssa (*hydrophobia*) set in. In spite of chloroform inhalations and the use of other narcotics, the convulsions increased in intensity. Menesson then put one pole of an induction current on the neck, the other on the sole of the foot, and as long as the current traversed the body, the convulsions ceased, so the patient could drink and speak, but they returned immediately as soon as the current was broken, on account of the pain which it caused. Thus two days passed under amelioration and aggravation according as the current was on or off.—(*Gaz. Med. de Paris*, 1877, 554).

Illus. 58.—Galvanism.—A man presenting all the symptoms of hydrophobia, and who had been bitten by a mad dog, was brought to Dr. Rossi, who, observing that he could not bear the sight of water, nor even of shining bodies, provided in another room a pile consisting of fifty pairs of plates of silver and zinc, intermixed with fifty pieces of pasteboard moistened with a solution of muriate of ammonia. He employed slips of brown paper moistened, as a conductor, on which the naked feet of the patient were placed, and at the moment when he opened his mouth to bite, one end of the arc was thrust into it, while the other communicated with the pile. The patient suffered a great deal from this operation, which, after several shocks, weakened him so much that he could no longer support it. Being stretched out on the floor, he was galvanized with ease; the operation made the sweat run from him in drops. This treatment was continued for several days, and resulted in the entire recovery of the patient. This cure was effected in the presence of several persons.—*Sig. Vassali Eandi*.

Illus. 59.—Steam bath.—Dr. Buisson, the French physician who, as before stated, was accidentally infected with the poison of hydrophobia, says: "On the ninth day, as I was in my

chamber, I felt all at once a pain in my throat, and still a greater one in my eyes. My body felt so light that I thought that if I were to jump, I would be able to throw myself to a prodigious height, or that by holding on to a window frame, I could sustain myself in the air. My hair was so sensitive that it seemed to me that I could count each one of them without seeing them; my mouth watered constantly; the impression caused by contact with the air made me feel horrible, and I avoided all brilliant bodies. I had a constant desire to run and bite, not men but animals, and all that surrounded me. It hurt me to drink, and the sight of water tried me more than the pain in my throat. I believe that a patient of hydrophobia can always drink by closing the eyes. The fits came every five minutes, and I then felt the pain start from the first finger and run along the nerves to the shoulder. Thinking that I could not employ any curative means, I took a steam bath, not with the intention of healing, but to suffocate myself. When the bath reached a heat of 57° centigrade, all the symptoms disappeared as if by magic. Afterwards I never felt anything more."—*Dr. Buisson.*

CHAPTER VII.

CATALEPSY.

The term *catalepsy*, derived from a Greek word signifying "to seize, or take possession of," is used to denote a very peculiar form of spasmodic disease, characterized by a loss, more or less complete, of consciousness and voluntary motion, during which the limbs remain in the exact position in which they chanced to be at the moment of attack, or in that in which they may afterwards be placed.

Symptoms.—The fit usually sets in suddenly and without warning, though in some cases it is preceded by evidences of nervous disorder. When the whole body is affected, the patient appears sitting or standing like a statue; consciousness is evidently lost, and to all appearances she has ceased to exist. We say *she* because the disease very rarely occurs in the male sex. The respiration and action of the heart are in many cases scarcely perceptible, and the entire system of voluntary muscles, especially those of the upper extremities, are in a state of rigidity. The muscles feel firm to the touch and resist a change of position; but the balance between the flexors and extensors is so perfect, that when a moderate force is applied the limbs may be made to assume any position, however grotesque or seemingly fatiguing, and that position is steadily maintained, unless forcibly altered, until the close of the fit. This condition is known as *flexibilitas cerea*; and may last only for a few minutes or it may continue for hours or even days. When the fit is about to terminate, a kind of tremor seizes the muscles and the limbs gradually assume their natural position. Unconsciousness is not always absolute, nor is the anæsthesia

that is associated with it; for although pinching, pricking and even burning may not be perceived, a powerful shock of electricity will generally rouse the sensibility of the patient, and is in most cases the most effective agent for restoring her to consciousness.

During the paroxysm the countenance is generally but little altered, though in some cases it is somewhat redder than natural, while in others it is unusually pale; but such disturbances of the circulation are common to nearly all nervous affections. The pulse, when perceptible, is generally slow and weak; the respiration retarded, and in some cases considerably embarrassed, by the extension of the spasmodic state to the respiratory muscles; the temperature is either normal or diminished. The eyes are open or shut, as at the moment of seizure, and they continue in the state of immobility characteristic of the disease. This gives to some cases such an additional appearance of death, that possibly there may be some truth in the popular belief, that cataleptics have sometimes been buried alive. It is very rare, however, for the signs of suspended animation to be so complete as to deceive the careful physician, who, if unable to detect the action of the heart and lungs by means of the stethoscope, has a precious resource in faradization, which produces muscular contraction in these cases as readily as in health. The paroxysm, if protracted, is apt to show some sign during its course of exacerbation or remission. When recovery takes place it is generally rapid and sometimes instantaneous; the patient being at once restored to the full possession of all her faculties, but, as a general rule, wholly unconscious of what has passed during the fit.

Causes.—The disease occurs so frequently in hysterical women, that many believe it to be merely a peculiar form of that protean disease. Sometimes, however, it is a symptom of chronic disease of the brain, tending to insanity, and especially to melancholia and dementia. This is most apt to be the case when it occurs in males. The disease mostly attacks females soon after puberty, in consequence of disappointed affections, violent grief, strong mental emotions, etc. It is also occasionally met with in children as a sequela of tubercular meningitis.

Protracted intellectual exertion, uterine irritation, excessive sexual indulgence, severe paroxysms of ague, and helminthiasis, are among the occasional causes of the disease.

Pathology.—Catalepsy seldom proves fatal, and when it does, it is generally in consequence of being complicated with mania, dementia, epilepsy, tetanus, or some other nervous disorder. Consequently, the autopsies that have been made have thrown little, if any, light on the true nature of the disease. Considering, however, the rapidity and completeness of the recovery in most cases, it is highly probable that no appreciable pathological changes ever take place in the great nervous centres; at least no such morbid alterations have ever been discovered as could safely be referred to this disease.

Treatment.—*Faradization.*—We have already alluded to the importance of faradization as a diagnostic sign in catalepsy. It is capable also of rousing the patient permanently from her dormant state. Faradization of the face by metallic conductors is said to be the most effective in restoring consciousness in these cases.

Illus. 60.—The following recovery from a cataleptic attack occurred in a woman whose death had already been certified by a country practitioner. It had been found that a mirror held to the mouth of the woman did not show any moisture, and that melted sealing-wax dropped on the skin caused no reflex movements. Happening to be present, I found the skin pale and cold, the pupils contracted and insensible to light, the upper and lower extremities relaxed, the heart's impulse and the radial pulse imperceptible. Auscultation, however, showed a feeble, dull, and intermittent sound in the cardiac region. No respiratory murmurs were audible. All the muscles of the face and the extremities responded well to the faradic current. Thereupon, although the patient had been apparently dead for thirty-two hours, I informed the relations that she was only in a trance, and recommended that the attempts at resuscitation should be persistently continued. On the following day I received a telegram, stating that the woman awoke twelve hours after my visit, and gradually recovered her speech and movements. Four months afterwards the pa-

tient called on me, and informed me that she knew nothing of the commencement of the attack, and that she had afterwards heard the people about her talk of her death, but had been utterly unable to give the slightest sign of life. Two years afterwards she was still alive and tolerably well.—*Prof. Rosenthal.*

Aranea diadema.—Grauvogl recommends this remedy in what he calls the *hydrogenoid* constitution. He says it is indicated in all cases attended with *chilliness*.

Illus. 61.—A woman subject to attacks of catalepsy, periodical headache, etc., was constantly chilly, with cold hands and feet, even in a warm room. Her sufferings were always aggravated by damp weather and the use of baths. *Aranea diadema* cured the case in a short time.—*Grauvogl.*

Cannabis indica.—Dr. Hale recommends this remedy for catalepsy. His indications are: loss of consciousness; feeble, irregular pulse; cold face, with fixed gaze and dilated pupils; oppression of breathing, and insensibility of the skin.

Scutellaria.—This remedy is strongly recommended in catalepsy by Prof. Paine, eclectic, on the ground that "it is of great value as a tonic to the nervous system, when there is a general nervous debility, either from uterine disease or other constant irritation of the nervous system." Whether he ever had any actual experience with it in genuine catalepsy is more than doubtful; and I strongly suspect that his recommendation is founded upon its undoubted usefulness in hysterical cases. Wherever catalepsy is complicated, as it frequently is, with hysteria, *Scutellaria* will probably prove to be a very valuable remedy.

SECTION II.

PARALYTIC DISORDERS.

CHAPTER I.

PARALYSIS IN GENERAL.

Paralysis, or palsy, is a condition in which there is a loss, more or less complete, of motor power, and sometimes of sensation, in one or more parts of the body. It is generally a symptom of disease seated in the brain or spinal cord; but sometimes it arises from injury to, or pressure upon a nerve-trunk, or from the effects of poison on the nervous system. When both the upper and lower extremities, and more or less of the trunk, are involved, the paralysis is said to be *general*. When only one-half of the body laterally is involved, the other side being unaffected, the condition is termed *hemiplegia*. When the paralysis is confined to the lower half of the body, in which the two lower extremities, and perhaps also the rectum and bladder, are implicated, the affection is known as *paraplegia*. *Local palsy* is where only one part of the body, as a limb, or one side of the face, is attacked. The paralysis is said to be *complete*, when there is entire loss of both sensibility and motion in the paralyzed part, and *incomplete*, or *partial*, when sensation and the power of motion are not entirely abolished. When there is merely a weakened state of the muscles from deficient nerve power, the condition is called *paresis*. The term *akinesia* is applied to the state in which the power of motion is lost, and *anæsthesia* to the condition in which sensation alone is impaired.

The state of the muscular system varies according to the character and degree of paralysis. Thus, there may be diminished firmness, with less susceptibility to the galvanic current than in health; or there may be complete relaxation of muscular power, and inability to contract under the galvanic stimulus. Again, there may be more or less atrophy associated with contraction and rigidity; or there may be perfect nutrition, with firmness, rigidity, and responsiveness to the galvanic current, and yet partial loss of power (*paresis*).

Causes.—(1.) When occasioned by disease of the brain, the paralysis may be due to congestion, apoplectic effusion, embolism, thrombosis, softening, induration, fatty degeneration, suppuration, tumors, hydatids, pressure from depressed bone, or possibly from mere functional disorder, as in cases where no lesion is discoverable after death. (2.) When it originates in disease of the spinal cord, it may result from loss of continuity, inflammation, softening, atrophy, or renal disease. (3.) Disease of the meninges may give rise to it by causing pressure on the great nervous centres; or it may originate in a nervous trunk, which is compressed by a tumor, or affected by some lesion which impairs its conducting power. (4.) It is sometimes associated with diphtheria, rheumatism, hysteria, epilepsy and chorea. (5.) It may be caused by the depressing action of certain poisons, especially tobacco, lead and mercury. (6.) Heredity is an important factor in the production of paralysis, as shown by certain peculiarities of the nervous and vascular systems handed down from parents to offspring, among which are (1st) a nervous irritability which favors spasms of vessels and functional disturbances, and (2d) a tendency to early degeneration of the cerebral vessels, which sometimes lead, even in children, to rupture and consequent hemorrhage.

Treatment.—The treatment of the various forms of paralysis will be found in its appropriate place in the following chapters on paralytic diseases.

CHAPTER II.

HEMIPLEGIA.

Hemiplegia is that form of paralysis to which the term *paralytic stroke* is usually applied. As before defined, the paralysis is limited to one lateral half of the body, and is generally due to disease of the opposite side of the brain. The parts usually involved are the upper and lower extremities, the muscles concerned in mastication, and those of one side of the tongue. The tongue when protruded points to the paralyzed side, because the muscles which draw it forward act only upon the opposite side of the organ. Speech is often very imperfect, in consequence of the hypoglossal nerve being implicated. The left side of the body is more frequently affected than the right; and when only one extremity is paralyzed, it is usually the upper one. Generally both sensation and the power of motion are lost on the affected side, but the respiratory function is not directly involved. The paralyzed cheek hangs loose and flabby, in consequence of the lesion implicating the trifacial nerve. The mind is sometimes strong and clear, but in most cases it is greatly weakened. The emotions are easily excited, insignificant matters cause anxiety and distress, and the faculty of memory is more or less impaired. The temperature of the paralyzed limbs is reduced, their power of resistance to cold and heat is diminished, their nutrition is impaired, and they become gradually atrophied.

Etiology, Pathology, etc.—The two principal causes of hemiplegia are, corpus striatum hemorrhage, and softening of the brain produced by an embolus or a thrombus. Destruction of the entire corpus striatum is followed by complete and per-

manent crossed hemiplegia. While, however, there is complete motor paralysis of the opposite side of the body, the emotional and reflectory functions remain unimpaired, and in some cases appear to be increased. For example, the patient who, when requested to laugh, is unable to do so on the paralyzed side, may, when his emotional functions are excited, laugh on both sides of the face. Notwithstanding the controlling action of the brain is withdrawn in these cases, the reflex influence of the spinal cord over the paralyzed muscles still continues, at least during the earlier stages of the affection, though subsequently it generally diminishes, and sometimes is utterly abolished.

We may readily distinguish the facial palsy caused by corpus striatum hemorrhage from that produced by paralysis of the portio dura—to which alone the term “facial palsy” is usually applied—by observing, that in the cerebral form the paralysis of the face is never complete, whereas, in true facial palsy every muscle supplied by the portio dura has lost its motor power. This is especially marked in the orbicularis palpebrarum and orbicularis oris muscles. In cerebral palsy the patient can always close his eye, and can purse up his lips sufficiently to blow and whistle, but in facial palsy he cannot.

It is not always easy to distinguish the paralysis caused by corpus striatum hemorrhage from that produced by softening of the brain, as the symptoms of apoplexy thus produced are generally the same in both cases. When hemiplegia is associated with aphasia, we may be confident that the left middle cerebral artery is the seat of embolism, and that the anæmia and softening are located in the third left frontal convolution. When the basilar artery is closed by an embolus, vomiting is produced. When an embolus blocks the ophthalmic artery, or the central artery of the retina, it causes sudden amaurosis. Sudden vanishing of the symptoms of paralysis sometimes occurs in hemiplegia produced by embolism, but it never occurs in cases due to cerebral hemorrhage. On the other hand, the fluctuations of temperature are less conspicuous and more regular in hemorrhage than in softening. Hemiplegia produced by thrombosis, is generally preceded by certain pre-

monitory symptoms, due to the gradual blocking up of the artery, such as vertigo, headache, loss of memory, stammering, unilateral numbness and chilliness, paralysis of the ocular muscles, contractions of the fingers, tottering gait, and incontinence of the urine—symptoms usually referred to softening of the brain. When the occlusion is complete, if the left middle cerebral artery is closed, there will be right-sided hemiplegia with aphasia, and if the right artery is affected, left-sided hemiplegia without aphasia. Hemiplegia not unfrequently follows extensive burns, which, according to Charcot, sometimes give rise to thrombosis of the arteria fossæ Sylvii. This is confirmed by a case reported by Duret, and by the observations of Dupuytren, Baraduc and Verneuil, all of whom found that arterial thromboses are frequent consequences of burns. Charcot and Vulpian observed in aged persons fatal hemiplegia after pneumonia, and the post-mortem usually revealed softening in some part of the brain. In these cases thrombosis was probably the cause of the softening and of the hemiplegia. Hemiplegia may also result from syphilitic lesions of the brain substance, or from syphilitic disease in which there is no apparent lesion of the brain. This form of hemiplegia occurs, as a rule, without loss of consciousness, even when the attack is sudden; it also differs from hemiplegia having a different cause, by the patient usually being under forty years of age, and by the attack being preceded by a constant fixed headache. The loss of motion in this form is generally gradual. The poisonous influence of tobacco upon the nervous centres, is well shown by the observations of Tamisier, who found that in fifteen cases of hemiplegia, nine abused tobacco, and two used it moderately; all but four smoked. Finally, hemiplegia may result from lesions occurring just below the point of decussation at the upper part of the spinal cord. In this case the palsy and the lesion producing it are on the same side of the body. The disease is also occasionally associated with epilepsy, hysteria and chorea, but in these cases it is almost as transient as the paroxysms producing it, and generally disappears within a few hours.

Treatment.—*Galvanism* and *faradization*, judiciously ap-

plied, have been found highly beneficial in some cases, especially after the more acute symptoms have subsided. In cases due to cerebral hemorrhage, it would not be prudent to make use of these measures until all danger from inflammation had ceased. This period does not generally set in before the ninth day, and is due to inflammation excited by the clot. Friction and stimulating embrocations applied to the paralyzed limbs are often of high value, as tending to promote a more active circulation, and should always be resorted to in cases attended with diminished temperature and defective nutrition.

Arnica.—This remedy justly stands at the head of our list of remedial agents, especially in apoplectic cases, first, on account of its *anti-hemorrhagic*, second, its *absorbent*, and, third, its *anti-paralytic* properties. It is particularly adapted to right-sided hemiplegia.

Illus. 62.—Mrs. T. P., æt. 64, after suffering for several days with congestive headache and vertigo, had an apoplectic seizure, attended with loss of consciousness and right-sided hemiplegia. The paralysis was complete, there being no sense of feeling on the affected side. There was ptosis and dilated pupil; also weak and slow pulse, stertorous breathing, dribbling of urine. Prescribed *Arnica*³⁰, in water, teaspoonful every three hours. Consciousness returned on the following morning. A slight numbness, with a feeling of great weight, was now felt in the right lower extremity; no sensation whatever in the upper. Remedy to be taken only three times a day. On the seventh day after the seizure the patient could manage to speak so as to be understood by some of her friends. At this time the patient could move the toes of her right foot, and there were occasional slight twitches of the flexor muscles of the leg; also a feeling of numbness in the right arm. On the tenth day, slight delirium, contracted pupils, quick pulse, and slight convulsive movements of the paralyzed muscles. *Belladonna*³⁰, in alternation with *Arnica*²⁰⁰, every three hours. Great improvement was manifest on the fourteenth day; pulse 60, no delirium; patient could move right leg, and could speak and swallow with greater facility. Withdrew *Belladonna* and prescribed *Arnica*²⁰⁰, dose night and morning.

Faradization of the affected limbs for ten minutes every day. No relapse occurred after this date, and the patient made a good recovery without any change of treatment.—*Hart*.

Mercurius.—We cannot understand why this remedy does not stand higher than it does as an anti-paralytic remedy, seeing that after long-continued use it has caused paralysis. It is specially adapted to cases of hemiplegia depending upon cerebral hemorrhage or syphilis, especially when complicated with encephalitis.

Illus. 63.—B. K., locksmith, æt. 23, entered Bremen Hospital April 19th, 1869. Was attacked three weeks ago by vertigo and dull headache. Soon severe fever, with anorexia and constipation set in. After two weeks it was noticed that the patient could not move the left arm or the left foot; he had also lost his speech. Pulse 92; temperature 42.2 C. When loudly spoken to, he opens his eyes, but sinks again into somnolency. There is imperfect ptosis of left eye, and dilatation and slow reaction of the corresponding pupil; there is also left-sided hemiplegia. Prescription, small doses of *Mercurius dulcis*, and ice to the head. For ten days condition remained unchanged. On the eleventh day (April 20th) hemiplegia on the right side, but passed off towards morning. Up to the seventeenth day no change was observed, except that the fever gradually decreased. Medication continued the same, with foot-baths of aqua regia. Aphasia now began to pass off; could articulate some words and syllables, though only with great exertion, but henceforth progress in speaking could be noted day after day. On the twenty-first day opened an abscess, size of a pigeon's egg, which had formed under the sagittal suture in a line corresponding to the coronary suture, from which flowed about twenty grains of good healthy pus, and immediately afterwards a larger quantity of green, thin, fluid pus. On pressing the probe on the dura mater more green pus was discharged, proving that the abscess was not seated between tabula vitrea and dura mater, but under the latter, and that we had to do with an encephalic abscess. From this time on, the hemiplegia decreased day by day. *Mercurius* was the only remedy given, and the patient made a good recovery.—*Dr. Scholz*.

Baryta carb.—Right-sided hemiplegia, with semi-consciousness, childishness, circumscribed redness of the cheeks, mouth drawn to one side, paralysis of the tongue; also great agitation, moaning and murmuring.

Bæhr says this is undoubtedly one of the most distinguished remedies for paralysis after apoplexy, and for paralysis of old people, where a paretic condition had been complained of for some time previous to the attack.

Kali iodatum.—This remedy is specially indicated in syphilitic cases; also in cases of corpus striatum hemorrhage, or where there is a tendency to hemorrhage previous to the attack; violent pains in the head, especially in the frontal region; amaurosis; cerebral congestion; red or pale face; chilliness with drowsiness.

Opium.—Hartman gives the following characteristic indications for the use of this remedy: Comatose sopor, with stertorous and rattling breathing, and depression of the lower jaw; impossibility to rouse the patient; or he can at most only be roused enough to cause him to gaze around unconsciously without answering a single question; the face is flushed, bluish-red, bloated; the patient moans, groans, moves his lips continually as if he were talking; the pulse is large and slow, the breathing oppressed and anxious; the face is covered with a profuse and cold sweat; the head feels heavy; if the patient attempts to raise it, it immediately sinks back upon the pillow; the temporal arteries pulsate strongly and visibly.

Causticum.—Hemiplegia complicated with aphasia, or with muscular contraction; also in paralysis of the external muscles of the eye, especially the external rectus, orbicularis and levator palpebræ superioris.

Conium.—Hemiplegia arising from cerebral hemorrhage, especially in old people, or when preceded by stupefying headache, vertigo, great drowsiness, heat in the head and eyes, with coldness of the hands and feet, dilatation of the pupils, dribbling away of the urine, and constipation.

The following remedies have also been employed with success in some cases:—*Aconite*, *Belladonna*, *Cocculus*, *Gelsemium*, *Lachesis*, *Lycopodium*, *Nux vomica*, *Plumbum*, *Rhus tox.*, *Sulphur*.

CHAPTER III.

PARAPLEGIA.

Paraplegia is that form of paralysis which involves the lower half of the body, including generally the bladder and rectum. It is caused by pressure upon, or disorganization of, some portion of the spinal cord, in consequence of disease involving either the cord, its membranes, or the vertebræ. The most frequent cause is myelitis, or inflammation of the substance of the cord, the chief symptom of which is paralysis of motion corresponding to the precise seat and extent of the spinal inflammation. The paralysis may be imperfect, and more on one side than on the other; it may also be of different degrees, from slight paretic debility up to perfect paraplegia.

When the entire cord at the seat of injury is inflamed, there is complete paralysis of all parts below the seat of lesion. When the lumbar cord alone is affected, we have paraplegia involving only the lower extremities; but when the dorsal cord is implicated, there is always paralysis of the sphincters. Generally the disease is bilateral, but sometimes only one-half of the cord is affected, and then we have what is termed *hemi-paraplegia* or *spinal hemiplegia*. In this case the paralysis corresponds to the side of the lesion, and the anæsthesia to the opposite side. When paraplegia sets in suddenly, it is the result of violence, as in compression from dislocation or fracture of the vertebræ.

Paraplegia commonly appears first in the form of paresis, affecting the lower extremities, and rendering the movements awkward and clumsy. Gradually a paralytic state sets in, which, if complicated with meningitis, is associated with

rigidity. At first the patient tires easily when walking or standing; afterwards the weakness increases until the legs become unable to support the body. After the muscles have become completely paralyzed, contractions occur, particularly of the adductors and of the flexor muscles of the knee; sometimes, however, the leg is permanently extended. Passive motion of the paralyzed limbs cause temporary contractions; this is followed by rigidity, preventing for a time further passive motion.

Sensibility is generally but little affected, even when perfect paraplegia exists. Compression is rarely so great as to destroy both sensation and the power of motion. Pain is not a prominent symptom, especially when the disease is due to simple compression. Even children seldom complain of it, and when they do, it is generally referred to the seat of lesion, and not to the lower extremities. But when convulsions occur, or when the posterior roots and the pia mater are involved, there is pain of a throbbing or shooting character, especially at night. Sometimes the convulsions of the paralyzed limbs are very severe, constituting what Brown-Séquard terms *spinal epilepsy*. The convulsions either occur spontaneously, or are excited by some peripheral irritation, such as cold, the introduction of the catheter, tickling the feet, etc., and are accompanied with pains in the limbs of a shooting or radiating character. Hyperæsthesia and increased reflex excitability are much more frequent than complete anæsthesia, even when there is total paralysis of motion.

When there is paralysis of the bladder and rectum, it is generally preceded by spasm and hyperæsthesia of those organs. In these cases there is frequent desire to urinate, with complete or partial retention of urine; there is also retention of the fæces, with pain and spasm in the rectum. Soon afterwards paralysis of the sphincters sets in, and then we have incontinence of the urine and fæces. In this condition the bladder is never completely emptied, even by the catheter, but the urine generally accumulates until the feeble resistance of the sphincter is overcome, and then dribbles away. This leads in most cases to cystitis, or catarrh of the bladder.

The patient being obliged to remain in the recumbent position, bed-sores are formed, which, with the cystitis and ever-increasing debility, sooner or later make fearful inroads on the general health. There are two forms of this local gangrene in paraplegia. One is an acute variety, not due to pressure or to contact of the excreta, but to paralysis of the trophic centre in the grey substance of the cord. In this form the destruction of tissue is rapid and fearful; skin, muscles, ligaments and bones are destroyed in quick succession, sometimes laying open the whole sacral region in a few days, and proving fatal from consecutive pyæmia and pulmonary embolism. This variety is generally associated with paralysis from injury, and destruction of the lumbar enlargement of the cord. In most cases, however, the bed sore is developed gradually, and chiefly in consequence of protracted pressure. This form, unlike the former, may generally be prevented by due attention to changes of position, cleanliness and local protection.

Nutrition generally suffers to a marked extent. The skin is wrinkled, and presents a dirty yellowish-brown appearance. The muscular fibres become atrophied, and ultimately entirely destroyed, but are in some cases replaced by extensive developments of fat.

In the chronic form of inflammatory paraplegia, what are called "cold" abscesses are apt, sooner or later, to make their appearance about the seat of inflammation, or along the course of the lymphatic vessels, as, for example, in the inguina or nates, especially in traumatic cases. These abscesses are of a very chronic character, show little if any tendency to point, and increase very slowly in circumference; but the exudation often relieves the medulla of pressure, so that after the discharge takes place, and sometimes before, both motion and sensation are restored to the paralyzed limbs. More frequently, however, the exudation spreads over a large portion of the spinal column; the fever, anæmia and emaciation incident to the condition increase; cystitis, decubitus and progressive muscular atrophy, continue to advance; and the patient perishes, either in consequence of the paralysis or of the ever-increasing marasmus.

When paraplegia arises from spinal meningitis, instead of myelitis, the symptoms are somewhat different. We refer more particularly to inflammation of the pia mater, because it is impossible to distinguish clinically that of the dura mater or of the arachnoidea. The acute form is generally complicated with inflammation of the membranes of the brain, and then it constitutes cerebro-spinal meningitis. The chronic form is accompanied with serous exudation in the spinal canal, forming what is called *hydromyelia*. In these cases the paraplegia may take place more or less rapidly, may remain stationary at a certain height, and may disappear again in consequence of the subsidence of the inflammation and absorption of the effusion. In the chronic form, the paralysis proceeds from below upwards, and is almost always preceded by painful sensations in the extremities. In the acute, the tonic spasms are caused only by movements of the spinal column, and not by reflex excitation of peripheral nerves.

Very rarely the disease presents itself in an epidemic form. Dr. Bockhammer describes* a *paraplegia epidemica*, which several times occurred in a dry cool region of the province of Guadelayara, in Spain. It raged fearfully there during the spring and summer of 1872. It mostly attacked strong and healthy persons of every age and sex. The course of the disease was either acute, where all the phenomena developed themselves quickly and without prodromata, or the disease ran a chronic course.

Its main symptom was a weakness of the lower extremity, so that after a while the patients were unable to walk. According to the severity of the attack, the patients complained of a painful sensation of crawling and twitching, or convulsive trembling in the lower extremities; in very severe cases pains in the lumbar region were associated with it. The disease was ushered in by a chill, with headache and excessive malaise; in other cases all general symptoms were absent; the patient fell down, and could hardly rise or walk without support. In all cases the paralysis of the lower extremities

* *Psych. Centralblatt*, March, 1874.

was incomplete, and extended from the muscles of the hip-joint to those of the feet; the flexors were more severely attacked than the extensors. The paralysis involved also the sphincter vesicæ, so that involuntary micturition took place, whereas the disease showed no influence on stool or on the genital functions.

The electro-muscular contractility of the muscles attacked remained uninjured, and co-ordination of movements, as well as the sensibility of the skin, were normal. Pressure on the vertebræ caused pain on the sacral region, as also when firmly pressing the foot on the ground, which produced a crawling sensation in the extremities, with a sensation of chilliness and coldness. In all chronic cases a sensation of stiffness preceded for several days the paralytic symptoms, painful prickling set in, and then the debility.

Such epidemics as these are doubtless of the nature of cerebro-spinal meningitis, differing from the usual form in the seat only; attacking here the lumbar portion of the spine, instead of the medulla and upper portion of the spine, as in true cerebro-spinal meningitis.

Pathology, Etiology, etc.—The grey substance of the cord is the part most liable to become affected. It is generally the first part attacked by inflammation, the morbid process afterwards spreading to the white matter and to the circumference. When it arises from injury, it is at first chiefly peripheral, and corresponds to two or three vertebræ near the seat of lesion, gradually diminishing towards the extremities. The inflammation occurs in areas of greater or less extent, the largest being, as a rule, in the middle or lower portion of the dorsal cord; in the upper portion of the cord the morbid areas, when present, are smaller and more scattered. After a time, however, the inflammation exhibits a tendency to spread either upwards or downwards, constituting myelitis ascendens or myelitis descendens. In the former case it may reach the brain; in the latter, the nerve-roots, the nerves, and even the muscles. The first stage of the morbid process is the *hemorrhagic*, blood being either effused in considerable quantities, or else infiltrated into the meshes of the parenchyma. The

second stage is that of *yellow softening*. In this there is less hyperæmia; the nerve-fibres have undergone fatty degeneration; the ganglion cells have become atrophied and disappeared; portions of the connective tissue have undergone proliferation, while others have been destroyed; and the affected portions of the cord at this stage present the appearance of a yellowish pasty mass, consisting of oil-globules and broken down nerve tissues. The third stage is that of *grey softening*, in which the oil-globules have become less numerous, and the nervous debris have disappeared, leaving spaces containing clear or turbid serum, with more or less connective, but no nervous tissue.

Unless suppuration and abscess occurs, which is not frequent, the ultimate result is usually spinal sclerosis; but in mild cases a retrograde metamorphosis may set in, the inflammatory products be absorbed, and partial regeneration of the nerve-tissue take place. Whatever form, however, the central disease may assume, the prognosis is always very doubtful. The most dangerous, of course, is when the paralysis is caused by, and complicated with, cerebro-spinal meningitis. Even after the inflammation is subdued, the paralysis remaining behind does not allow of a favorable prognosis. If, however, the paraplegia is of a purely *reflex* character, due simply to excitation of the spinal cord, and arises from disease or injury of remote organs, without any special symptoms of organic disease in the cord or its coverings, the prognosis is generally much more favorable. Such cases as these may be due to uterine disease, pregnancy, helminthiasis, dysentery, the irritation of teething, etc. Other occasional causes are syphilis, tobacco, and other blood poisons. Tamisier found that out of eighteen cases of paraplegia, five were great smokers and three moderate smokers.

Treatment.—The pathology of paraplegia is of such a varied and important nature, as to require that the practitioner shall apply his remedial measures to the essential cause of the paralysis, if he hopes to materially benefit his patient. When the paraplegia is of a purely reflex character, the treatment, which should be similar to that recommended for "Convulsions," will not be likely to present any great difficulty; but if,

instead of peripheral irritation or diminished nutrition of the cord, there should be hyperæmia or myelitis, and especially if degeneration of the cord has set in, then these special conditions will require particular attention. As we shall have space for only a few illustrative cases, we will first present an outline of the treatment required in inflammation of the cord and its membranes, which will afford an opportunity of passing in review the remedies chiefly required for these more common and more important causal conditions.

In the most acute cases, as after a cold, or after severe traumatic injuries of the spinal column, if the pains in the back are very severe, and especially if there is high fever, *Aconite* will be found to be the best remedy to allay the hyperæmia and prevent the exudative process from taking place. In traumatic cases it ameliorates the fever and the pains, and, in connection with the simultaneous application of cold to the spine, very much retards the exudation. In order to obtain the full benefit of the remedy, it should in most cases be pushed to the extent of producing a profuse perspiration, which is usually easily effected.

When the fever is less severe but the congestion is still great, as shown by severe lumbar or dorsal pains, which are increased by pressure or motion to such an extent as to excite tonic muscular spasms, and especially if there are nervous pains, like electric shocks through the limbs, causing them to frequently twitch or jerk, *Belladonna* or *Atropine* will be required, and will generally give good results. The same remedies are also indicated in case the muscles of the chest become implicated and the respiration is affected. If the difficulty of breathing increases we may, if necessary, apply ice to the spine.

If tonic convulsions occur, we may still rely upon the last-mentioned remedies, or we may resort to *Cuprum metallicum* or *Cicuta virosa*. The latter is indicated when there are frequently recurring jerks or clonic spasms of the extremities, accompanied with severe pains in and through the affected portion of the spinal column. *Cuprum* is particularly indicated when the spasms are of a tonic character, and especially if preceded by twitchings of the hands and fingers.

Paralytic symptoms call for *Mercurius* or *Kali iodatum*, the former for its liquifying effect upon the exudation, which is also sometimes rapidly reabsorbed under its influence, and the latter when *Mercurius* alone is insufficient. In very obstinate cases, *Nux vomica* or *Sulphur* may be tried, especially if the paralysis involves the bladder and rectum.

But it is more commonly chronic local myelitis and meningitis that demand treatment in paraplegia, and for the successful management of which the most skillful application of our remedies will be required.

When the membranes are chiefly affected, but after exudation has occurred, we may try, in succession, *Arnica*, *Rhus tox.*, *Oleander*; the first when the sensation is that of numbness or tingling, and the latter when the paralytic symptoms are more pronounced.

If the paralysis, after reaching a certain stage, remains stationary, it may often be greatly benefited by the methodical application of *faradization* or *galvanism* to the paralyzed limbs. Kafka also recommends the frequent use of tepid baths, and of the spray douche on the spinal column, in this condition.

In the chronic form, complicated with myelitis, meningitis, and inflammation of the vertebræ, if no abscess has yet formed, Kafka says he has obtained decided improvement from *Phosphorus*. After this remedy has been used continuously for a fortnight, he either pauses for eight days or interpolates *Natrum muriaticum*, and after the lapse of a similar period he returns to the *Phosphorus* and continues it until all symptoms have disappeared. Both remedies, he says, answer the anomaly of the scrofulous, as also that of the rachitic and tuberculous constitution, only they should be continued to be used in these conditions for some length of time, and better still, from week to week in alternation.

After abscesses form, *Silicea* and *Sulphur* are indicated; the former if the pus is yellow and odorless, and the latter if sanious and of a bad smell.

Many other remedies will be needed in particular cases, but to be successful they will require to be strictly individualized; among which are to be found such deeply acting remedies as *Arsenicum*, *Calcarea*, *Iodium*, *Plumbum*, *Secale* and *Strychnia*.

If syphilis is at the bottom of the trouble, a thorough-going anti-syphilitic course should be adopted, consisting chiefly in the proper administration of *Mercurius* and *Kali iodatum*.

Arnica.—This remedy is indicated in traumatic cases, especially after the more acute symptoms have subsided. As a general rule, the more chronic the case the more satisfactory the action of the remedy, provided the degeneration of the nerve-fibres has not yet set in.

Illus. 64.—H. G. S., æt. 30, has suffered for the last three months from paraplegia, produced by a railroad accident. There had been concussion of the spinal cord, with inflammation of the meninges, followed by effusion. Up to the present time he has been treated allopathically, with the following result. There is tenderness of the spine, nearly its entire length, extreme emaciation of the body and limbs, the lower extremities measuring only two and a half inches in diameter at the thigh. The lower extremities are totally paralyzed; bowels and bladder in a similar condition. The case is also complicated with indigestion and dysentery. Any attempt to raise the patient is followed by vertigo, and subsequent convulsions; he can take champagne wine without distress, but food is quickly rejected, or passed undigested through the alimentary canal. The dysentery yielded to the ordinary homœopathic remedies. I then gave *Arnica*³⁰ and *Bryonia*³⁰, and improvement commenced at once, and continued until the patient was able to sit without support; at this time his digestion was normal, and he had grown fat and strong, and at the end of three months he seemed like one in health, except some tenderness about the spine, and the paralyzed condition of the legs. They were useless and insensible, so that pins could be thrust into them without being felt. I now placed the patient under daily treatment with the electric battery, applying the induction current to the spine and limbs, and continuing its use until, at the end of a year from the time of the accident, he was able to walk with a cane, and in eighteen months was perfectly restored to health. He suffered no relapse.—(*Dr. W. H. Jenney*.)

Belladonna.—Hyperæmia of the spinal cord, followed by

spasms and paralysis of the extremities. Cerebral symptoms constitute an additional indication.

Illus. 65.—Mrs. —, æt. 32, had fever and ague when a child, and while in the state of perspiration ran into the street and fell into a puddle of water. Spasms immediately followed, and since then she has had curvature of the spine and paralysis of the extremities, with loss of memory. *Belladonna*⁶, three doses at an interval of a week, improved her memory, and enabled her to walk.—(*Dr. S. H. Higgins.*)

Causticum.—This remedy is said to be particularly indicated in paralysis with implication of the urinary organs, when the extremities tremble on walking and standing, but not when sitting.

Illus. 66.—A girl, æt. 12, previously healthy and free from scrofula, was attacked with scarlatina, and on the ninth day exposed herself to the open air, but desquamation proceeded slowly. Œdema set in, with oppression of the chest and hydrothorax. This was relieved by Senega¹², but hemi-paraplegia of the entire right side, including the tongue, followed; speech entirely lost; understanding weakened; no appearance of pain. Gave *Causticum*¹², in solution, a teaspoonful twice a day. On the following day there was œdema again of the paralyzed arm. This shortly disappeared, and the mobility of the tongue increased. Gave *Causticum*³⁰ and afterwards the 400th. At the end of five months she was in full possession of her memory, speech, and mobility of her lower limb, but the paralysis of the arm remained. For this a number of remedies were given without benefit, but it improved so that eventually only paralysis of the extensors of the fingers, and lack of feeling in the hand remained.—(*Allg. Hom. Zeitung.*)

Gelsemium.—This remedy is particularly adapted to reflex cases of uterine origin, especially when accompanied by cerebro-spinal congestion.

Illus. 67.—Miss W., æt. 16, had been under allopathic treatment for over nine months. The spine was so sensitive that she could not lie upon her back. The lower extremities were cold and completely paralyzed. There was pain shooting from the back into the head; also diplopia. The menses stopped

six months before I saw her. For this last symptom I prescribed *Senecio gracilis*, 1st dec., twice daily for three weeks, when the menses were restored. For the paralysis and cerebro-spinal symptoms, I gave *Gelsemium*, 1st dec., five pellets twice daily, and in about a week she could use her limbs a good deal, and in two months from the time I commenced treatment, could walk across the room, and now is able to go where she pleases. The *Gelsemium* was given two doses a day every alternate week.—(Dr. J. E. Brown.)

Calcareo.—This remedy is specially indicated in cases occurring in scrofulous and weakly constitutions, especially when accompanied with hyperæsthesia, great sensitiveness of the surface to cold, leucorrhœa and general debility.

Illus. 68.—Miss H., æt. 19, fair, lymphatic, pale and weakly, since the first appearance of her menses, five years ago, suffers from severe pains over the whole surface of her body, more severe on the left side, causing the patient when touched to cry out; these pains pass inwards through the muscles, with sensation of coldness, both day and night. Exacerbations occur every three weeks, of two or three days' duration, with vomiting and dysuria. Pulse 120; complete anorexia and sleeplessness; menses normal; leucorrhœa. After one and a half years' continuance, a motory paralysis set in, and when she was brought to me she suffered from an almost complete paraplegia of the lower extremities. The patient had previously been under both allopathic and homœopathic treatment. After trying a large number of remedies without the least effect, I remembered that I had once cured a baker, who was paralyzed in both arms, with *Calcareo*, which especially suited the constitution of my patient, and also covered the symptom of paralytic weakness. I accordingly gave this remedy, and fourteen days afterwards the patient could walk well, free from all pain, and without impediment to locomotion.—(Dr. V. Neucker.)

Phosphorus.—Paraplegia from inflammation of the spinal marrow, especially when complicated with spondylitis. It is especially applicable where there is an hereditary tuberculous disposition, or when the exudation is sanious and bad smelling.

Illus. 69.—A boy, æt. 6, acquired two years ago an inflammation of the second and third dorsal vertebræ, with a simultaneous bending in of the spinal column, in consequence of which he became dyspnœic and cyanotic in the highest degree. He was given up by his attending physicians as incurable from œdema of the lungs. I prescribed *Phosphorus*^s, in solution, to be taken hourly, and absolute rest enjoined. Improvement showed itself as early as the third day. The dyspnœa and cyanosis gradually disappeared, and the painfulness to pressure of the vertebræ diminished remarkably. More than nine months passed under these favorable circumstances, when the parents allowed, "in order," as they said, "that the boy might not remain a cripple," that oil-fomentations, kneading and squeezing of the projecting vertebræ be made. They became inflamed again, and the consequence was a paralysis of the lower extremities and simultaneous insensibility, with prolonged tonic spasms and occasional twitching of single muscles. This was accompanied with involuntary stool and urine, dyspnœa, fever, sleeplessness and great peevishness. Against this high-graded spondelo-myelitis, I prescribed again *Phosphorus*, and ordered absolute rest. Improvement took place so rapidly that in four weeks almost all diseased conditions had disappeared. The paralysis and its accompanying symptoms would not yield, however, even under the subsequent use of Mercur., Kali, Plumbum, Arsen., Nux vom. and Strychnia. Even the spray douche failed to benefit, and faradization only lessened the anæsthesia and tonic spasms. During this time, softening of the exudation and the formation of an abscess occurred. After opening the abscess, the administration of *Silicea*, forest air and a strengthening diet, voluntary movements took place, and increased, until, after a supervening catarrh of the intestinal canal, which yielded to *Phosphorus*^s, but caused great emaciation, he can again walk alone, and is on the high road to recuperation.—*Dr. J. Kafka.*

CHAPTER IV.

INFANTILE SPINAL PARALYSIS.

This disease is sometimes called the "essential" paralysis of infancy and childhood, to distinguish it from simple functional, or reflex paralysis, arising from peripheral irritation. We have termed the disease "spinal," because the best authorities place the seat of the disease in the spinal cord, although cases occasionally occur which seem to depend upon some lesion of the brain. It appears, therefore, that the pathology of the disease is not yet fully established, but the preponderance of evidence is decidedly in favor of its originating in congestion and inflammation of the spinal cord, followed by effusion, and by hyperæmic softening and atrophy of the antero-lateral columns. It may take the form of hemiplegia or paraplegia, but generally only one limb or group of muscles is affected, or it may be still more circumscribed. It may set in suddenly, or be preceded by convulsions. There is usually not much loss of sensibility or of contractility, but simple numbness, with loss of motory power. The disease, however, may be either partial or complete, may affect one side, upper or lower extremities, one or several organs, as the eye, tongue, etc., or the whole muscular system may be involved. It sometimes disappears in a few days; in other cases it is more or less stationary and permanent. In the worst class of cases, though the disease does not necessarily tend to fatal results, there is but little if any hope of cure, but the affected member becomes shriveled and deformed, and always remains withered and useless. Frequently, however, the prognosis is more favorable, and many cases recover. Dr. Radcliff says, "if the paralyzed

muscles retain their electro-contractility and sensibility, and so show that they have not passed into that state of fatty degeneration into which they always tend to pass eventually, there appears to be scarcely any limit to the time in which improvement, and even recovery, is possible."

Causes.—The disease occurs almost exclusively during the period of dentition, and, in the majority of cases, is found to follow violent attacks of dysentery and cholera infantum. Sometimes the disease does not appear for several days after the acute symptoms have subsided; but whether it sets in suddenly or gradually, it is in most cases directly dependent on compression of the brain or spinal cord, especially the latter, which compression is caused by the effusion of serum into the cerebro-spinal cavities, as has been fully explained under the head of Paraplegia (q. v.). Unless the hyperæmic and inflammatory condition of the nervous centres is speedily relieved, the latter undergo the degenerative changes already pointed out; the muscular tissues also take on fatty degeneration, and are affected by secondary contractions.

Treatment.—1. *Electricity.*—Dr. Mossdorf is said to have treated eleven cases successfully with the descending current of central galvanization of the spinal cord. It needs perseverance; in some cases over one hundred applications were made before motility was restored.* Not unfrequently it will be found that when the affected muscles answer but little or not at all to the faradic current, they will respond to a slowly interrupted voltaic current, and are even more than normally sensitive to it. Where there is still response to faradism, this form of electricity is the best to use; but where the irritability to the interrupted voltaic current is *increased*, it will be best to treat the case at first with this current. In a little time it will be found that the reaction to the faradic current is restored, and that the excitability to the interrupted voltaic current lessens; then faradization only may be employed. The disease is generally a tedious one, and the treatment must be continued for a very long time—for months, or even years—

* *Zeitschr. f. Pr. Med.*, 48, 1877.

but so long as there is any response to electrization there is a hope of benefit.*

2. *Other local measures.*—*Bathing* is often highly beneficial. The cold *douche* directed against the spine, or bathing with *salt-water*, especially if followed by steady and persistent *friction* up and down the spine, and *shampooing* of the affected muscles, will tend to promote the nutrition of both the spine and the paralyzed limbs. *Arnicated embrocations* are also useful in advanced stages, particularly one composed of equal parts of *Arnica* θ and olive oil; but if there is much sensitiveness of the spine, and especially if there is a febrile state of the system, the *Arnica* had best be replaced by *Aconite*. The *wet pack* to the spine is also useful in the earlier stages, or during the continuance of acute inflammatory symptoms.

Medical Treatment.—According to Dr. Richardson,† the medicines most useful in this affection are the following:

Aluminium met.—When the paralysis is confined to the lower extremities, and the seat of the effusion has evidently been in the spinal column.

Arnica mont.—In cases where the paralysis is general rather than local, and the exudation has occurred in both the cranial and spinal cavities.

Belladonna, or *Atropine*, will be found of great service in hemiplegia, where the effused liquid has been confined to the cranium.

Cocculus will be found useful in paraplegia occurring in debilitated nervous patients, and where the circulation is impeded or sluggish, giving rise to œdema.

Dulcamara is an excellent remedy in paralysis of the extremities, upper and lower, which are not devoid of sensation, but the circulation is so interfered with as to occasion a peculiar icy coldness.

Gelsemium is indicated in complete paralysis, or rather, where the muscles seem to have only lost power of contraction at the will of the patient, there being no loss of sensation or the slightest change in temperature.

* *Braitwaite's Retrospect*, Pt. LXVIII, p. 73.

† *Monograph on Cholera Infantum*, 1875.

Nux vom.—This remedy will be found useful in cases of paralysis that are incomplete; that is, where the power of motion at will is not totally gone, but very much impeded by painful twitchings, and spasmodic contractions occur whenever the affected part is exercised.

Phosphorus.—Where the trouble is confined to the extremities, upper or lower, and originates from pressure on the spinal cord.

Plumbum met.—Complete paralysis, together with general atrophy.

Secale cor.—In emaciated subjects, if the paralysis is accompanied by a constant tendency to spasms.

Stannum is the remedy in hemiplegia when the paralyzed parts are constantly moist from perspiration.

Dr. Richardson also includes the following in his list of remedies: *Æsculus hip.*, *Anacard.*, *Arsen.*, *Baryta carb.*, *Caustic.*, *China*, *Cuprum*, *Ferrum*, *Ignat.*, *Graphites*, *Oleander*, *Rhus tox.*, *Stramon.* and *Zincum*.

CHAPTER V.

FACIAL PARALYSIS.

This is one of the varieties of what is called "peripheral" paralysis—a form due in most instances to pressure on, or injury to, a peripheral nerve, which in this case is the *portio dura* of the seventh pair, or the great motor nerve of the face. The paralysis is almost always unilateral, and as the *portio dura* is distributed to what are termed the "muscles of expression," the symmetry of the features is destroyed, and the palsied side is without expression. The mouth is drawn towards the sound side, especially when any attempt is made to move the parts, as in speaking or laughing. Consequently, the patient is unable to whistle, or to articulate with clearness, especially such words as require the aid of the lips to pronounce them. The paralysis of the corrugator supercillii and orbicularis palpebrarum renders it impossible for him to corrugate the eyebrow or close the eye of the paralyzed side. Sight is unimpaired, except as it may become injured by exposure of the globe to dust, smoke, and other irritating substances. The displacement of the punctum lacrymale causes the tears to overflow the lid, to the great annoyance of the patient. Although the paralysis affects only the muscles of expression, and not those of mastication, the act of eating is greatly interfered with, because, the buccinator muscle being involved, food is apt to lodge between the cheek and gums. When the lesion is behind the spot where the gustatory nerve is given off, the sense of taste will be impaired on the paralyzed side, and if still farther back, so as to implicate the auditory nerve, the sense of hearing will also be affected. In this case, the hearing may be diminished or ren-

dered more acute, according to the nature of the lesion, pressure interrupting and irritation and inflammation exciting its function. We may also have paralysis of the palate, uvula and surrounding soft parts; in which case, if the mouth is opened, they will be seen to be drawn towards the sound side. When the paralysis is bilateral (which, however, seldom happens), the face loses all power of expression, and the countenance becomes a perfect blank. Romberg mentions a case of this kind, that occurred in a girl of sixteen, in Dupuytren's Clinique: "There was no distortion, but a pendulousness, and entire absence of motion was perceptible in all the features. The eyelids only closed half, the lips stood apart, and played backwards and forwards from the impulse of respiration. The expressive countenance bore a serious character, which contrasted forcibly with the patient's frame of mind. She was heard to laugh aloud, but the laugh appeared to come from behind a mask."*

Diagnosis.—There is generally no difficulty in distinguishing true facial paralysis from that of hemiplegia, as the muscles animated by the fifth nerve which chiefly suffer are those of mastication, so that if the patient be requested to close the jaw firmly, it will be found that the temporal and masseter muscles of the sound side contract more energetically and promptly than those of the affected side. Moreover, in facial palsy it is utterly impossible for the patient to close his eye on the paralyzed side; whereas in the cerebral form this is not the case, for he can shut it with apparent ease. It is true, he cannot close the lid as firmly over the eye as he can do with the one on the other side, nor can he close that of the affected side without shutting that of the sound side at the same time, or at least he can only do it with great difficulty. If the third nerve is implicated, there will be ptosis, or dropping of the upper lid, with dilatation of the pupil and strabismus divergens.

Prognosis.—The prognosis is generally favorable. The affection may last from a few days to as many months, but under appropriate treatment the patient will usually recover, especially if the case is attended to early, before atrophy of the

* *Hamilton on Nervous Diseases.*

muscles sets in. After this period, if the muscles fail to respond to faradization, or to a strong galvanic current, the case, so far as a complete cure is concerned, may be considered hopeless. Much depends, however, upon the special cause of the trouble. When due to cold, pressure, syphilis, or any removable cause, the chances of ultimate recovery are good; but if the affection is caused by an inter-cranial tumor, or by fracture or caries of the temporal bone, the prognosis is, to say the least, very doubtful.

Pathology.—Neuritis, and inflammatory or hemorrhagic exudations pressing upon some portion of the portio dura, are found to be the chief pathological alterations. The nerve sometimes becomes inflamed from the extension of inflammation from the surrounding parts; and occasionally the function of the nerve is interrupted by the pressure caused by proliferation of the nuclei of the connective tissue of the neurilemma.

Causes.—Cold and damp are doubtless the most frequent causes of this affection. It has often been known to result from exposure of the face to cold while lying on the damp ground, or while sitting in a "through draught" from some window or door. Sleeping with the face pressed upon any hard substance, as the arm, has been found to occasion it in some instances. Any affection capable of producing pressure upon any portion of the nerve, such as inflammatory exudations, hemorrhages, tumors, syphilis, enlargement of the parotid gland, etc., may give rise to it. Pressure of the forceps in delivery has caused it in the new-born infant. The accidental injury, laceration, or section of the nerve during the performance of surgical operations, are also occasional causes.

Treatment.—1. Every ascertainable cause of the affection, such as rheumatism, syphilis, aural disease, tumors, exudations, etc., should first receive attention, and, if possible, either be removed or the effects mitigated by treatment.

2. *Electricity.*—This is such an important agent in the treatment, that Hammond says the disease cannot be cured without it. Butler and other electricians also highly recommend it. One pole of the galvanic current should be placed opposite

the stylo-mastoid foramen, and the other passed over each of the affected muscles in succession, every day.

3. *Other external measures.*—*Shampooing* the affected muscles has been found to be beneficial, and should be practiced daily. The weakened muscles may be supported by strips of adhesive plaster, so applied as to remedy, to some extent, their defective action. Thus, the unprotected eye may be closed, or, in case of ptosis, the lid may be raised and supported by this means. Detmold invented a double wire hook, curved at the ends, and of the requisite length, one extremity of which he placed in the corner of the mouth, on the affected side, and the other over the corresponding ear. By this means the paralyzed muscles were supported, and the mouth drawn towards the centre of the face.

Aconite.—Recent cases of a catarrhal or rheumatic origin, whether due to injury or to acute neuritis; anæsthesia of the affected muscles.

Illus. 70.—Mary M., æt. 13, has always enjoyed good health up to the present time. Paralysis occurred about ten days ago, after lying upon the damp ground. Examination reveals that she is suffering from left-sided facial paralysis. There is no distortion of the features, but the skin is smoother on the right side, and there is a tendency for it to wrinkle on the left side. When told to shut her eyes, she is unable to close the left eye completely. Prescribed *Aconite*, 3d dil., in water, a teaspoonful every three hours until improvement occurs, then only three times a day. Improvement set in on the second day of treatment, and in a little over a week the patient was well.—*Hart.*

Gelsemium.—Paralysis of the lids; impossible to close the eye, or to raise the lid; heaviness in the lid; bruised pain behind and above the eyes.

Illus. 71.—Miss R., aged about sixteen, noticed suddenly, four days ago, that she could not close her left eye. It remained open when asleep as well as when awake. So far as she knew the attack was instantaneous. A careful examination was made, and it was found that there was paresis of a portion of the facial nerve, paralyzing the corrugator supercillii, tensor

tarsi, and orbicularis palpebrarum muscles. The facial muscles of the left side also were slightly affected, as was evident on her attempting to smile. On thrusting the finger suddenly toward the eyes, the sound eye would instinctively close, but although the other one would move about, there was complete inability to close it. She was directed to move the upper lid up and down over the cornea, with her finger, every quarter of an hour or so, imitating as closely as possible the motion of the lid, to prevent injury while the nerve was being treated. Electricity from a constant battery was applied, and she was given *Gelsemium*³⁴, internally. In two weeks she was entirely well, and has remained so to this date, now over a year.—*Dr. C. H. Vilas.*

Kali chloricum.—Rheumatic paralysis of the facial nerve, especially when affecting the muscles of the cheek; pressure and tension in the face; cramp-like drawing in the cheek; stinging in the face.

Illus. 72.—A young man, æt. 30, suffered for a month with difficulty in speaking, eating and whistling. He was not able to puff out the cheeks, because the lips could not be held firm on the right side of the face. When he wished to speak there was a want of symmetry of the muscles of the face; the labial commissure of the paralyzed side was lower; the mouth was oblique in the action of laughing and speaking; on the paralyzed side there were neither wrinkles nor muscular contractions. The trouble did not attack either the eye, eyelid, hearing, nose or tongue. *Kali chloricum*, 6th dil., was given, and repeated in lower attenuations, until a complete cure was reached. No cause could be discovered for the disease. One of his great-grandfathers had a similar trouble, and was never cured of it.—(*Dr. Cramoisy, Paris, France.*)

Arnica.—Facial paralysis caused by injury, especially where there is much soreness of the affected parts, accompanied with hyperæsthesia, and inflammation of the facial nerve.

Belladonna.—Acute cases, attended with inflammation of the nerve, redness of the face, hyperæsthesia, throbbing, and extension of the inflammation from the neighboring parts, as from the parotid gland, tonsils, etc.

Causticum.—Sensation of heaviness in the upper lid, with inability to close the eye firmly; visible twitching of the lids and eyebrows, especially the left. This remedy is particularly adapted to cases produced by exposure to cold.

Kali iod.—Facial paralysis due to syphilitic disease in any of its forms.

Mercurius.—This remedy is also indicated in syphilitic facial paralysis, whether produced by pressure of nodes, inflammatory exudations, neuritis, or syphilitic disease of the brain.

CHAPTER VI.

DIPHTHERITIC PARALYSIS.

Bretonneau, who is generally regarded as being the first recorded observer of this form of paralysis, was not only preceded by Aretæus, to whom the German writers ascribe this honor, but both the primary disease, diphtheria, and its most important sequela, paralysis, were known to Hippocrates,* "the father of medicine."

There are two forms or degrees of the affection, one of which is much more severe than the other. The former sets in immediately, with symptoms of severe constitutional disturbance, due chiefly, no doubt, to the disorders associated with it, such as inflammation of the kidneys, pulmonary œdema, dropsy, uræmic convulsions and delirium. The paralysis usually is general, and speedily ends in death. As a general rule, however, the disease does not set in under two or three weeks, or it may be as many months, after the primary affection has been subdued. It is then very much milder, and almost always ends in recovery. In these cases, the first parts to suffer are the soft palate and pharynx. The patient's voice is observed to have a nasal twang, and articulation is generally very much impeded. The soft palate hangs loose and pendulous, and when irritated, or when the patient expires forcibly, remains motionless. Deglutition suffers, in consequence of the paralyzed state of the pharyngeal muscles. Food is apt to lodge in the pouches of the pharynx, and may even cause suffocation, by obstructing the entrance of the glottis. In the majority of cases, these are the only parts involved, though cases are on

* *Bull. Acad. Med., Paris, 1861.*

record where there was general paralysis of all the voluntary muscles.

The tongue and larynx are not often affected, but paralysis of the muscles of the eye is not uncommon. Vision is more or less impaired, not in consequence of amaurosis, as was formerly thought—as there is no optic neuritis or other disease of the fundus of the eye—but chiefly because the ciliary muscle, which controls the power of accommodation, is paralyzed, so that the patient can only see well at a distance. Sometimes the third nerve is also implicated, as shown by ptosis, strabismus and double vision.

In some cases, owing to paralysis of the muscles of the lower extremities, the patient experiences great difficulty in standing or walking. Sometimes the muscles of the neck are affected, so that he is unable to either support or fix the head. Occasionally the diaphragm is involved, giving rise to difficult and accelerated respiration. The lower sphincters may likewise be implicated, causing incontinence or retention of urine and fæces. Not an uncommon sequela, also, in these cases, is loss of the virile power.

A greater or less degree of anæsthesia is usually present. The upper extremities are most apt to suffer in this way, although the lower ones do not entirely escape.

Prognosis.—It is rarely the case that diphtheritic paralysis becomes permanent, though weeks and even months may elapse before the affected muscles are restored to their natural condition. In some cases, however, owing to a sclerosed condition of the connective tissue of the cord, the muscles waste, and the anæsthesia and paralysis become permanent. A singular fact in these cases, is, that the degree of paralysis is not proportionate to the severity of the primary disease; for mild cases may be followed by as frequent and as severe paralysis as the most violent.

Etiology and Pathology.—Many views have been entertained regarding the etiology of diphtheritic paralysis. Letzerich believes the disease to be due to the presence of microphites, which he regards as the agent of contagion in the primary disease. Von Graefe considers the paralysis to be an affection of the sympathetic nerve. Maingault and Trousseau regard it

as a regular symptom of diphtheria; while Gubler and Dejerine believe it to be merely an accident of convalescence, similar to the paralysis that sometimes follows attacks of cholera, typhoid fever and small-pox.

The anatomical lesions of the nerve-centres, which are doubtless due to the primary disease, throw, we think, a flood of light on this subject. Oertel found hemorrhages in the spinal meninges, and in the medulla in the region of the respiratory centre; he also found great proliferation of nuclei in the nerve-sheaths and in the gray substance of the centre of the cord. Buhl also found proliferation of the nuclei of the sheaths of the peripheral nerves and of the spinal nerve-roots. Vulpian found atrophy of the connective tissue of the external and posterior parts of the anterior horns of gray matter. The lesions, however, were slight in his cases, and in one he could distinguish nothing abnormal. It was found that the posterior roots of the spinal nerves present no alterations, whence it is inferred that the disease cannot be of peripheral origin. The most recent observations appear to establish two facts: 1st, that the phenomena are due to parenchymatous and interstitial changes in the gray substance of the cord, and that these changes are of an inflammatory nature; 2d, that secondary changes exist in the anterior or motor nerve-roots, but not in the posterior or sensory roots. Now, since these changes correspond, both in location and extent, to the centres of nerve supply to the affected muscles, the paralysis is in all probability due to them.

Treatment.—*Electricity.*—As in most other forms of paralysis, faradization and galvanism are of great value in most cases; and it may be laid down as a rule, that when the affected muscles will respond to either of these currents, recovery is almost certain.

Antimonium tart.—This remedy is indicated in paralysis of the respiratory muscles, or when there is pulmonary œdema.

Illus. 73.—F. W., æt. 2, made a satisfactory recovery from an attack of diphtheria, there being no more prostration than usual in that disease. One week afterwards he was afflicted with paralysis. The cervical, dorsal and lumbar muscles were affected. On raising him upright, his head would drop as that of a person recently dead; his body would bend the same

way, under its own weight. This was not owing to prostration, as the child exhibited vigor, and tolerable good color in his countenance. He could move his hands some, though unsafely; lower extremities entirely powerless; could speak, but not very distinctly; could swallow easily; and what appetite he had was for beer. Respiration easy; temperature slightly increased, with the exception of the extremities, which were cold; pulse firm and regular; bowels and urinary functions normal. Prescribed *Rhus*³, to be taken in water every two hours; next day no improvement, but on the contrary was getting worse; for two days further I gave, *Ferrum*, *China* and *Arsenicum*, until the third day, in the evening, when I found my patient suffering from œdema of the lungs. I now prescribed *Antimonium tart.*, one-half grain, *pure*, in a tumbler full of water, of which a teaspoonful was to be given every fifteen minutes. Next morning, to my surprise, I found my little patient sitting upright in bed, with a piece of bread in his hands. He took no other medicine, and when I saw him a few weeks afterward, he was perfectly well.—*Dr. F. X. Spranger*.

Gelsemium.—This remedy is adapted to almost every form of diphtheritic paralysis, but more particularly to cases where the muscles of the eye are involved.

Illus. 74.—S. S., æt. 18, fourteen days after recovery from a mild attack of diphtheria, became paralyzed, the paralysis involving the muscles of the upper and lower extremities, the soft palate, and pharynx, and external muscles of the eye, especially those animated by the third nerve. There was diplopia, external squint and ptosis, most marked in the right eye. Prescribed *Gelsemium*³⁰, in water, every three hours. Next day there was some improvement; the ptosis and diplopia had been relieved, and the patient could articulate and swallow with greater ease. The remedy was now continued at the rate of three doses per day, complete recovery taking place in less than a month.—*Hart*.

Natrum muriaticum, *Nux vomica*, *Rhus tox.*, and *Phosphorus* have also been recommended for diphtheritic paralysis; the latter more particularly when the virile powers are involved. It is well to remember that most cases will recover, in the course of time, without any special treatment.

CHAPTER VII.

PROGRESSIVE BULBAR PARALYSIS.

History.—This disease, variously called *labio-glosso-pharyngeal paralysis*, *progressive labio-glosso-laryngeal paralysis*, *progressive bulbar paralysis*, and *Duchenne's disease*, was first described by M. Duchenne, who believed it to be a disease of the muscles. Soon afterwards, Trousseau had an opportunity of making several post-mortem examinations, and came to the conclusion that it was a disease of the nerves instead of the muscles, or rather that it was due to atrophy of the nerve-roots. More recently the subject has been carefully investigated by Charcot, Kussmaul, Joffroy, Hammond and others, with the result of furnishing a satisfactory explanation of its complex phenomena.

Symptoms.—The disease generally begins in such an insidious manner, that the patient is hardly aware for some time after it sets in that there is anything really the matter with him, except clumsiness or fatigue. He first notices, perhaps, that he becomes tired in talking and eating; that swallowing is difficult and unpleasant; that the tongue feels heavy and clumsy; and that articulation is more or less indistinct and difficult. The lips are inclined, more and more, to remain open, so that after a time it requires considerable effort and attention to keep them approximated. This condition finally becomes so marked, that the patient finds it extremely difficult, if not utterly impossible, to articulate the labials, which require the aid of the lips in pronouncing them. On this account, also, he is unable to purse up his mouth so as to blow or whistle. Another early symptom is salivation, which is

generally excessive. The saliva not only accumulates in the mouth, but dribbles from it continually. Sometimes the patient is troubled with pains in the head and neck, and a sensation of constriction in the throat and chest. Swallowing is rendered extremely difficult, by reason of the general paralysis of the muscles of the tongue, lips and pharynx. The food, after it is placed in the mouth, is liable to fall out again, owing to the separation of the lips, and when retained it lodges in the sides of the mouth, and requires the aid of the fingers to remove it. It is also liable to enter the larynx and produce suffocation. The paralysis of the soft palate gives a nasal twang to the voice, as is observed under similar circumstances in diphtheritic paralysis. At last there is complete aphonia, from paralysis of the vocal cords. The patient is also unable to clear his throat and nose by coughing and blowing, although he may be able to cough when food gets into the larynx. But although laryngeal obstruction may be thus overcome, in some cases, there is still danger of suffocation from paralysis of the pneumogastric nerve, which at this stage of the disease is greatly to be feared.

As the disease continues to advance, the powers of life gradually fail, not so much from the direct effects of paralysis, as from the general debility caused by insufficient nutrition and respiration. Although the patient's appetite may remain good, his experience has taught him the danger and suffering arising from every attempt to swallow, and he therefore ceases to take any more food than is barely sufficient to sustain life. At last he refuses food altogether, and is obliged to be nourished artificially. Unable from the weakness of inanition to sustain himself upon his feet, he takes to his bed or couch, and soon becomes too much debilitated to move his head upon his pillow. After the cervical portion of the cord becomes involved, respiration becomes labored, the skin is covered with a cold, clammy perspiration, and the patient dies, either from asphyxia, cardiac paralysis, uræmia, or some other intercurrent complication. Generally the mind remains perfectly clear to the last; but sometimes delirium supervenes, as frequently occurs in the closing stage of other diseases, or dementia may

make its appearance. The emotions are generally easily excited. The disease seldom occurs before the age of forty, but one case is reported at the early age of thirty-two years.

Diagnosis.—The extent and character of the paralysis are such as to prevent any mistake in diagnosis, when a reasonable amount of care is taken to prevent it. It might be carelessly mistaken for facial paralysis, but the latter is confined to the parts animated by the facial nerve, whereas in Duchenne's disease only the muscles of the lower portion of the face are involved. In ordinary paralysis of the tongue, cerebral symptoms are generally present, which is rarely the case in the disease now under consideration. Progressive muscular paralysis sometimes resembles it, especially when the tongue is first involved, but that affection rarely commences in these parts, nor does it ever occur until atrophy has set in. The defect in articulation sometimes resembles that of some forms of aphasia, but in the latter disease there is no paralysis of the muscles about the mouth, and if the patient has the power of speech at all, he is much more likely to pronounce the wrong word or letter than the right one.

Prognosis.—The prognosis could scarcely be worse than what it is, every genuine case of the disease hitherto reported having succumbed within a period of two or three years. A few cases have been published, in which symptoms of Duchenne's disease were successfully treated with anti-syphilitic remedies; but these cases do not exactly correspond with those of progressive bulbar paralysis, and were probably nothing more than syphilitic affections. It is not unlikely, however, that syphilis may be at the bottom of the trouble in some instances, and if so, our most hopeful outlook in such cases will be in that direction.

Etiology and Pathology.—The disease occurs more frequently in males than females. It appears to originate in some cases from mental anxiety, and in others from rheumatism, exposure to cold, and other depressing agencies; it has also been attributed to constitutional syphilis; but it must be admitted that at present nothing is positively known as to the exciting causes of the disease.

The *pathology* of progressive bulbar paralysis is better understood than its etiology. The microscope shows plainly that there is degeneration of the ganglion cells in the motor nuclei of the hypoglossus, portio dura, spinal accessory and pneumogastric nerves. The nucleus of the cell is destroyed, and its place is supplied by numerous brown granules. Ultimately, the cells become atrophied, and nothing remains but a few yellow granules. Chronic sclerosing myelitis has also been observed at the points of origin of these nerves, in the brain and upper part of the spinal cord, the nerve-fibres being reduced in size and number, their contents found in a state of fatty and granular degeneration, and the cylinder axis either atrophied or hypertrophied. It is a singular fact, however, that while these lesions appear to account for the symptoms observed in bulbar paralysis, the wasting of ganglion cells is not always in proportion to the atrophy of the affected muscles. In order to explain this, Duchenne and others suppose that the ganglion cells in the motor nuclei are partly motor and partly trophic, and that, while paralysis would result from wasting of the former, both atrophy and paralysis would require atrophy of the latter. This hypothesis, however, is as yet unsupported by any positive evidence.

Treatment.—Nothing satisfactory has yet been accomplished in the way of curing this formidable complaint. It is evident from its pathology, that we can never hope to effect a radical cure, unless the disease be taken in hand at its very commencement, before degenerative changes have taken place in the nerve-centres. So far, *electricity* appears to have done the most good towards relieving the sufferings of the patient, but the relief thus obtained is merely palliative. If, as is not unlikely the case, the disease should happen at any time to depend on constitutional syphilis, then benefit may be expected from a thorough course of *Mercurius* and *Kali iod.* Hughes, in his "Manual of Therapeutics," says: "*Anacardium* is said to have cured it; and *Oleander* is recommended on the strength of some symptoms in its pathogenesis, which, however, I think misinterpreted. But as the lesion here is identical in form with that which obtains in general spinal paralysis, and differs

only in seat, I think our most promising remedies must be *Belladonna* and *Plumbum*, especially the latter." Lilienthal suggests, in addition to the above, *Baryta*, *Cannabis*, *Cocculus*, *Hydrocy. ac.*, and *Stramonium*. Personally, we have had no experience in the treatment of this disease, and consequently are unable to add anything of clinical value to the above suggestions. We have never seen but one case, and this man, who was 43 years of age, suffered and died under allopathic treatment, without receiving, apparently, the least benefit from their "heroic" measures, which consisted of the usual routine of blisters, issues, moxas, tartar emetic ointment, and their "Sampson," *calomel*. We should like to have had the opportunity of giving a thorough trial to *Plumbum*, which appears from its pathogenesis to be the best homœopathic remedy.

CHAPTER VIII.

GENERAL PARALYSIS OF THE INSANE.

Dementia paralytica, or general progressive paralysis of the insane, is similar in its nature to the disease last described; differing from it chiefly in the seat of the anatomical lesions, which render the paralysis more general and the mental disturbance much more profound.

Symptoms.—The disease usually sets in with symptoms of mental derangement. The memory is somewhat impaired; the temper is irritable; and the patient suffers from headache and vertigo. His behavior is apt to be such as to attract attention; he loses control of himself or does things that are foreign to his usual habits; his reasoning is childish or absurd; and there is a tremulous motion of the lips and face, indicating a paretic condition of the facial muscles. The most peculiar and characteristic symptom, however, is a difference in the size of the pupils. The pupils are not, as a rule, dilated; on the contrary they are generally somewhat contracted; but one is larger than the other. The voice is also altered; it has more or less of a nasal twang, such as is met with in diphtheritic and bulbar paralysis. Articulation is difficult and hesitating, sometimes almost amounting to stammering; in other cases there is an apparent embarrassment in speaking, not from any defect in articulation, but from want of co-ordination of language, as in aphasia. These symptoms may continue for several months, without the patient appearing to get either better or worse. At last, other important ones set in. The paresis becomes more marked; the hand trembles, so that the patient is unable to feed or dress himself without great diffi-

culty. He is also unable to write, or guide his pen properly. His walk is irregular, uncertain, and more or less grotesque. He will start off hurriedly and then suddenly stop; or he will stop frequently, as though he was undetermined whether to proceed any further or not. His speech is thick and muffled, as though he was attempting to speak with his mouth full. The saliva accumulates until it dribbles away. If told to show his tongue, he protrudes it with difficulty. His countenance presents a vacant, silly expression, corresponding to the condition of his mind. His memory and judgment are weakened, so that he is no longer capable of managing his business affairs. He enters into contracts of the most unreasonable description, buying and selling without any regard to his necessities or the extent of his means. He is very busy, but changeable as the wind. He is also extremely rash and notional. There may be, at times, some method in his madness, but his conduct is generally of the most eccentric character. If he takes a notion to marry he is likely to do so at the expense of everybody's good opinion but his own. He is possessed of the "mania de grandeur." He imagines himself, if not a king or an emperor, at least a duke or a prince. He counts his wealth by millions and his horses by the thousand. His magnificence is only equalled by his rank and the extent of his domains. In other cases the mania is homicidal, or injurious to others, instead of being harmless. He may be guilty of kleptomania or attempts at rape, but while such actions show him to be a proper subject of restraint, he should be sent to an asylum, instead of to a prison, with, perhaps, a sentence to hard labor. Finally, when the last stage of the disease is reached, motory paralysis and imbecility set in. The intellect becomes more and more clouded; the expression more vacant and silly; and the physical decay more manifest. Epileptic convulsions, in all their various forms, occur at regular or irregular intervals, and add their injurious effects to the morbid phenomena. Perhaps he may be seized with a fit of apoplexy, followed by hemiplegia. Or facial paralysis may set in, making him still more an object of pity as well as helplessness. He is now insensible to either pleasure or pain, and is equally unconscious of what

is going on around him. He leads a mere vegetative existence, sitting or lying mostly in one position from day to day, until he is carried off, two or three years after the first appearance of the disease, by a violent epileptic seizure; or he is so reduced as to become bed-ridden, and ultimately dies of the combined effects of paralysis, decubitus, and acute tuberculosis. Such is the history of most cases; but there are exceptional instances in which the disease is more protracted, and may end in recovery; or in which it pursues a more rapid course, and may terminate fatally within a comparatively short period.

Causes.—General progressive paralysis affects chiefly men, the proportion being about seven males to one female. The subjects of the disease are generally between the ages of thirty and fifty years. It is thought that the greater prevalence of the disease among men, is due to their being more addicted to the use of alcoholic stimulants and excess in venery, than women. Hard work, exposure, privation, and anxiety of mind, are also regarded as predisposing causes. But, aside from the influence of the syphilitic poison on the system, there is no doubt that injuries to the head constitute by far the most frequent cause of the affection. It is much more common in public than in private asylums, which would seem to show that it is more prevalent among the lower than the higher orders of society. Whether it is hereditary or not, has not yet been satisfactorily determined.

Pathology.—We have already stated that the disease is similar in its nature to that of progressive bulbar paralysis. Prof. Meyer says it is, *ab initio*, only a chronic encephalitis, and that during its first stages it remains limited to the cortical layer of the convexity, especially to the anterior portions of the large hemispheres, or else that it originates in the meninges, or at any rate is complicated with meningitis. These views certainly agree well with the morbid phenomena of the disease, at least during its first stages; but the majority of neuropathologists believe it to be a diffuse interstitial inflammation of the brain and spinal cord, leading finally to destruction of ganglion cells and atrophy of the nerve-centres. Althaus

aptly compares it to the atrophic form of Bright's disease of the kidneys. Its progress is generally chronic, but it is sometimes acute. The cerebral convolutions, especially those of the anterior lobes, are atrophied, and the ganglion cells altered in form and color, having undergone amylaceous degeneration. The posterior columns of the spinal cord exhibit the evidences of sclerosis, such as atrophy of nerve-fibres, proliferation of connective tissue, and fatty and amyloid degeneration. In other cases there are signs of granular myelitis; large masses of fat globules, with hypertrophy of the septa of the cord. The cerebral and spinal nerve-roots also exhibit similar alterations.

Prognosis.—The prognosis is generally bad, and should always be regarded as at least doubtful, except under the most favorable circumstances for treatment. Prof. Meyer, however, claims to have cured more than half of his cases, fifteen in number, and that they remained in good bodily and mental health after the lapse of several years.

Treatment.—There is no doubt but that this disease is amenable to treatment, provided it be taken in hand early, before metamorphosis of nerve-tissue has taken place; after that period it is not likely that a complete cure can ever be effected. The remedies that have hitherto proved most beneficial, are: *Arsenicum*, *Belladonna*, *Baryta carb.*, *Glonoin*, *Kali iod.*, *Mercurius*, *Phosphorus*, *Plumbum* and *Zincum*.

Glonoin.—Congestive headache, with fulness, throbbing, and vertigo; sleepless at night and drowsy during the daytime; tired, tremulous condition of the limbs; irritable mood and hesitating speech.

Illus. 75.—T. H., accountant, æt. 44, addicted to intemperance and venery. For the last ten months has been troubled with a fulness in the head, vertigo, and sleeplessness at night, with weakness, dulness, and disposition to sleep during the day. He is very irritable, and cannot bear to be crossed in his wishes. Three months ago he became suddenly unconscious, and for three weeks afterwards was "out of his mind." He now has unequal pupils, tremors, hesitating speech, and fancies that he is a prince. Prescribed *Glonoine*³⁰, in water, a dose three times a day until improvement sets in, then only night and

morning. This treatment was continued for a period of about four months, when the patient was able to resume his occupation, which he has continued without interruption from that day to this, a period of nearly two years.—*Hart*.

Kali iod.—Excitation, as if intoxicated by spiritous drinks; heat in the head, with redness of the face, and throbbing in the forehead and temples; mental disorder with sleeplessness. This remedy is specially indicated in syphilitic cases.

Illus. 76.—R. S., school teacher, æt. 38, sanguine temperament, married. At the age of twenty-two, previous to marriage, was treated for syphilis. Had a sore on the glans penis, and swellings in the groins. Was afterwards troubled with headache, sleeplessness, and mental derangement. One year ago had apoplexy, followed by hemiplegia lasting nearly three months. This was succeeded by epileptic convulsions, at intervals of every two or three weeks, which have continued until the present time. Now has the "mania de grandeur;" pulse weak; speech hesitating; pupils unequal; still has periodical headache, of a congestive character. Prescribed *Kali iod.*, pure, in five grain doses, three times a day, with *Belladonna*³ between, also thrice daily. Patient was discharged cured in about five months from the commencement of treatment. There was steady but gradual improvement from the first week. *Belladonna* was dropped after the expiration of the first month, the patient being free from headache and much more rational.—*Dr. T. K. Spinner*.

Prof. Meyer also gives the Iodide of Potassium in moderate doses (*Kali iod.*, 3-5.0, *Aqua dest.* 180.0) in these cases, but depends chiefly upon establishing and maintaining the suppurative process in the scalp, in the region of the great fontanelle, by means of tartar-emetic ointment. After suppuration is established, the sore is kept open two or three months, by dressing it daily with basilicon ointment. He claims that this local treatment is more effective in subduing the cerebral symptoms than all other forms of local or constitutional treatment.

Illus. 77.—N. N., revenue officer, æt. 31; diagnosis, general progressive paralysis. Had syphilis, 1865. 1867, was run over

by a wagon and occiput injured. Since then suffered from headache. Summer, 1868, apoplectic fit. July, 1869, severe headache, declared of syphilitic origin, with melancholia; will not eat, tears his clothing, will not urinate, and tries to pull his genitals off. After a time he became more quiet, but there remained an intellectual weakness. After a while, another maniacal paroxysm, followed by hesitating speech and strong fibrillary tremors; pupils unequal. December 3d, first inunction with *Ung. Ant. Tart.* December 20th, the patient feels easier in his head, speaks with more freedom. January 20th, the patient speaks perfectly rational about his state. Discharged cured, May 15th, 1870.—*Dr. L. Meyer.*

As every well-authenticated cure of this disease is of interest to the profession, we append the following case, chiefly as illustrative of the power of *Belladonna* in this affection.

Illus. 78.—Last year, March 18th, I was called to Lucian Robinson, then of this city. I found him sitting helpless, speechless, and stupidly staring at the opposite wall. He had no power to feed himself or dress himself more than an infant. His mother told me he had been employed, along with his father, on a railroad. There had been a break-down, by which the father was killed, and the son so severely wounded in the head, as to fall into a state of furious madness. When this subsided, he fell into the miserable condition in which I found him. I at once gave him *Belladonna*²⁰⁰. His mother thought him better almost at once, from his efforts to speak. The medicine was continued to the end of the month. One dose of *Nux vom.* was interposed, and the *Belladonna* resumed. This was followed by *Phosphorus*¹⁶⁰⁰⁰. On resuming again the *Belladonna*, I used the 3000th, and did not again recur to the 200th. *Stramonium*²⁰⁰ was then given twice, and the cure was completed by one dose of *Phosphorus*¹⁶⁰⁰⁰ on the 11th of June.—*Dr. James Lillie.*

CHAPTER IX.

PROGRESSIVE MUSCULAR ATROPHY.

Progressive muscular atrophy, or wasting palsy, was long regarded, and is still by some, as a disease of the muscles; but although the muscular tissues are specially affected, the pathology of the disease, as we shall find, is such as to place it in the category of spinal affections. Friedreich, who still holds to the muscular theory of its origin, calls it *progressive chronic polymyositis*.

Symptoms.—The disease is characterized by a gradual atrophy of the voluntary muscles, more particularly of the extremities, in consequence of which there is a corresponding loss of motor power. In most cases, the disease commences in certain muscles of the thumb, the opponens and adductor pollicis, though according to Eulenburg, it is the first external interosseous of the right hand that is generally first affected. The next muscle of the upper extremity to be affected is usually the deltoid, the muscles of the arm and forearm not being attacked until a later period. Sometimes the disease commences in the deltoid muscle instead of the muscles of the hand. Then follow the trapezius and serratus muscles, which produce displacement of the scapula. The disease now returns to the arm, the flexor and extensor muscles of which it destroys, so that the patient can no longer raise or bend the limb, and rendering it almost entirely useless. The hand also becomes more or less deformed from contraction of the muscles, the atrophy of which gives to the member more the appearance of a bat's claw than of a human hand. The muscles of the lower extremity, and the pectoralis major muscle, are usually the next

to suffer. This causes great difficulty in standing and walking, and a shrinkage of the upper portion of the chest. The muscles of the eyes, neck and head are seldom implicated, and the abdominal muscles and diaphragm also escape, or are attacked late in the disease.

When the disease occurs in children, the muscles of the lower extremities, instead of diminishing in size, undergo a species of pseudo-hypertrophy, in consequence of which the circumference of the affected limbs is increased, at the same time that there is a wasting of the muscular fibres. This is due to proliferation of the adipose and connective tissues, probably in consequence of inflammation, or of morbid nutrition.

As the wasting process goes on, the weakness increases, and is followed by lassitude and exhaustion. A peculiar quivering or tremor of the affected muscles, termed "fibrillary twitching," is observed from time to time, and is of considerable importance as indicating that the disease is progressing; when the fibrillary twitches cease, it is either owing to the total destruction of the muscle, or there is improvement in its nutrition. Sensibility is not often affected, but transient pains are common in the earlier, and anæsthesia in the later stages of the complaint.

Causes.—The disease is undoubtedly hereditary. It has been known to pass in succession from father to son through at least four generations. It is much more common in men than in women; and the latter have transmitted the disease to their descendants without themselves being affected. The proportion of males to females is about five to one. This excess of males to females is accounted for, to a great extent, by the fact that men are much more liable than women to strain the right arm and shoulder by hard labor; the right upper extremity having been found to be affected nearly three times as often as the left. Other causes which are supposed to give rise to it, are: blows on the back of the head and spine; rheumatic, typhoid and other fevers; measles; the puerperal state; sun-stroke, and exposure to cold and damp.

Pathology.—The controversy has for years waxed warm between the supporters of the myopathic and neuropathic theories, as to whether progressive muscular atrophy begins as

primary myositis or neuritis. The former contend that the degeneration of the various structures of the spinal cord and nerve-roots, is secondary to that of the muscles; while the former point to the association of progressive bulbar paralysis with progressive muscular atrophy, which frequently occurs in the later stages of the latter complaint, as an unanswerable objection to the myopathic theory; for no one any longer believes that progressive bulbar paralysis is a disease of the muscles, it having been conclusively shown to depend on atrophy of the ganglion cells of the motor nuclei in the rhomboid fossa. Moreover, it is impossible to explain by this theory, why the nerves and nerve-roots have so frequently been found healthy when the anterior horns of the spinal cord were diseased. The general belief of neuro-pathologists, therefore, now is, that progressive muscular atrophy is a disease of the spinal cord; and that it arises chiefly from atrophic degeneration of the ganglion cells of the anterior horns of the grey matter, from where the motor roots emerge, and which preside over the nutrition of the muscles.—(*Althaus*.) These changes are very similar to those that take place in progressive locomotor ataxy, the chief difference being in the seat of the primary disease, which in the one case is in the anterior cornua, and in the other, the posterior columns. The similarity of the two diseases is still more manifest in those cases of locomotor ataxy which, in the later stages, are associated with complete atrophy of the muscles, and doubtless from the same cause, namely, the extension of the disease from the posterior columns, through the substance of the cord, to the anterior horns of grey matter.

Prognosis.—The prognosis in progressive muscular atrophy is exceedingly bad. Few, if any, ever fully recover from the effects of the disease, though its progress is occasionally checked, and if this is effected before there is too great loss of muscular tissue, the patient may live a number of years in comparative ease; if not, after suffering every degree of helplessness, death at last comes to his relief, either from decubitus and exhaustion, from bronchial obstruction in consequence of insufficient respiratory power, or from the development of bulbar paralysis with its sequelæ.

Treatment.—The nature of this disease is such that we can hope to accomplish but little, in the way of a cure, after atrophy of the muscular fibres has taken place. So long, however, as any of them remain unaffected, *faradization* and *galvanism* will prove beneficial, if not in removing the cause, at least in improving the nutrition of the muscles. For this purpose the interrupted current is generally the best form of electricity to employ in these cases, as it is found that the motor nerves will respond to it until complete atrophy of the muscular fibres has taken place; whereas the degree of excitability to the galvanic current is greatest nearest the cord, and diminishes in proportion to the distance from it, so that it may continue to exist in the former situation, when it is greatly diminished or entirely lost at the periphery.

The medicines that have been employed with the greatest benefit in wasting palsy, are: *Argentum nit.*, *Belladonna*, *Phosphorus*, *Plumbum*, *Nux vomica* and *Strychnia*.

Strychnia.—Paresis of the trophic nerve cells, with wasting of the voluntary muscles. Hale says that *Strychnia* is primarily homœopathic to paralysis arising from myelitis, meningitis, pressure on the cord, hemorrhage in the spinal cord, congestion of the cord, and softening of the cord. He further says: "I have treated many cases of paralysis from these conditions, and have seen the best results from the 6th cent. The pressure of congestion or extravasation is an excellent indication for the use of *Strychnia* in the highest attenuations."

Illus. 79.—A man, æt. 30, had fallen on his head, when skating in the park, and some weeks afterwards suffered from impaired vision and dilatation of pupil of left eye, and constant pain in the head. These symptoms ceased, but nine or ten months after the accident, the muscles of the left arm and shoulder began to waste. He was cured by *Strychnia*, one-thirtieth of a grain ter die. The interrupt current (*faradization*) improved the bulk and nutrition of the muscles without removing the paralysis.—*Dr. J. R. Reynolds*.

Phosphorus.—Trembling of the hands, with paralysis of the fingers; heaviness in the shoulders and arms, with rheumatic pains, wasting of the muscles, and paralytic weakness; cold-

ness of the extremities, with weakness, trembling of the muscles, and partial anæsthesia.

Illus. 80.—George C., æt. 46, common laborer, began to be affected with wasting palsy in his right hand and shoulder, a little over three years ago. His present condition is as follows: He has no use whatever of his upper extremities, which are greatly deformed and wasted, especially the right one. He can manage to shuffle along a little on his feet, but his walk, if it can be so called, is very insecure, owing to wasting of the muscles of the thigh and leg, especially of the gastrocnemii; he has entirely lost the calves of his legs, which he says were once as large as any man's. There are occasional convulsive or fibrillar twitches in the affected muscles, which show that the disease is still advancing. Prescribed *Phosphorus*, 6th attenuation, twice a day, and daily faradization of the affected muscles. In the course of about three weeks of this treatment, the fibrillar twitchings ceased and did not return. The patient was not quite so clumsy in his walk; and the affected muscles appeared to be somewhat better nourished. No change was therefore made in the treatment, except that *Phosphorus*³⁰ was substituted for the lower attenuation. Faradization was continued, with the addition of vigorous friction of the affected limbs. During the summer months, the shower bath was also employed, apparently with benefit. The patient can now, after twenty months treatment, walk with considerable facility and firmness, and can make some use of his hands and arms, but the improvement has been much less in the upper than in the lower limbs, owing no doubt to more extensive degeneration of the dorsal than of the lumbar portions of the cord. It is not likely, therefore, that the patient will ever fully recover the use of his upper extremities, especially as the disease is known to be hereditary in his family, both his father and grandfather having died of it.—*Hart*.

CHAPTER X.

PROGRESSIVE LOCOMOTOR ATAXY.

We include progressive locomotor ataxy, commonly called *tabes dorsalis*, among paralytic diseases, 1st, because, in the last stage of the disease, marked paralysis is actually present, and constitutes an important factor in the symptomatology of the affection; 2d, because the disease bears a striking resemblance to progressive muscular atrophy, both in its pathology and the muscular atrophy that frequently accompanies it, as pointed out under that head—a disease that is now generally recognized as belonging to paralytic affections; 3d, the term *paralysis* is, according to its etymological derivation, just as applicable to want of coördinating power, as it is to deficiency of nervous or impairment of muscular power; and thus, being a more comprehensive term than *ataxy*, which simply signifies “want of order,” may very properly be made to include the latter in its signification. While, therefore, we shall have no hesitation in classing locomotor ataxy among paralytic diseases, we shall continue to use the term “ataxy” in the sense in which it is now generally employed, to designate a peculiar form of paralysis, namely, the disease at present under consideration.

History.—Previous to the year 1858, the disease known as “progressive locomotor ataxy” was generally confounded with others of a somewhat similar nature, under the name of *tabes dorsalis*. We are indebted to M. Duchenne, of Boulogne, for the first clear and comprehensive account of the disease, although Dr. Todd, of Edinburgh, had, as early as the year 1847, pointed out the fact, that some cases of what was then generally known as *tabes dorsalis*, were characterized by a

want of coördinating power in the lower extremities. Duchenne, who thought he had discovered an entirely new disease, gave it the name of "progressive locomotor ataxy," by which it is now known. The term "ataxy," which, as already stated, simply denotes "want of order," is at present applied to any disease, such as chorea, which is characterized by a want of coördinating power over voluntary muscular movements. Such a symptom—for it is only a symptom—is observed, not only in tabes, but in diseases of the cerebellum, and in poisoning by lead, mercury, alcohol and tobacco. In order, therefore, to render it sufficiently definite for the disease under consideration, it is generally best to qualify it by the prefix "locomotor," or some other equally distinctive appellation. Nevertheless, its use in this connection has now become so common, that, for the sake of brevity, the qualifying term is frequently omitted.

Symptoms.—Duchenne divides the disease into three stages. The first is characterized by paralysis of certain cerebral nerves, especially those presiding over the senses of sight, hearing and taste; of pains of the character usually denominated "electric"; and of sexual excitement, leading to, or accompanied by, loss or diminution of the sexual power. This stage may last four or five years, and even longer. The second stage is marked by paretic debility, with loss of coördinating power in the voluntary muscles, especially those of the lower extremities, together with the loss of sensibility. This stage may last ten years or more. The third stage, in addition to the preceding symptoms, which continue in an aggravated form, is characterized by well-marked paralysis, spasms, and certain intercurrent diseases, such as bronchitis, pneumonia, and tuberculosis. This order of symptoms, however, is far from being invariable; on the contrary, many cases commence in the lower, and some even in the upper extremities. But in the large majority of cases the symptoms do present themselves in the order stated; and therefore it will be well to describe them in this manner, especially as the trouble with the eyes may exist for months before other marked symptoms ensue. For this reason, what Duchenne calls the first stage of the disease, is generally re-

garded as the prodromic. It is characterized by disturbance of the functions of the eye and its appendages, and gives rise to amblyopia, diplopia, strabismus and ptosis; or it may be that other cerebral nerves are affected, causing deafness, insensibility of the face, loss of taste, difficulty of swallowing, etc. Pains, too, either of a neuralgic or rheumatic character, are a marked feature of the initial stage. The former, which generally have their starting point in the lumbar region, pass like electric shocks down the lower limbs, while the latter are usually located in the joints or muscles. Trousseau regards the neuralgic pains, resembling those produced by electric shocks, as being almost pathognomonic of this stage of the disease; but as they are by no means a constant symptom, they can be of but little diagnostic value, unless associated with other prodromic symptoms, such as disturbances of vision, etc. Prof. Laségue also lays great stress upon this symptom, but only as an indication of spinal or cerebro-spinal affections. Such a pain, he says, is a common prodromal manifestation of spinal affections, as we find it to precede both locomotor ataxy and general paralysis. At first, the pain is of a migratory character, wandering from one part of the body to another, and occurring in paroxysms; lasting off and on for two or three days, and then subsiding only to reappear after an interval of perhaps several weeks. At last the pains settle in one of the lower limbs, and gradually move upwards as the disease progresses; they also become more and more severe, as well as more frequent and lasting. The rheumatic pains are the most persistent, and are usually greatly aggravated by sudden atmospheric changes, or by exposure to cold or damp. The patient may also suffer during this period from spermatorrhœa. This is not a constant symptom, but when it exists it has a very prejudicial effect upon both the moral and physical condition of the patient. The emissions, which at first take place only at night and with erections, finally occur without erections and at all hours of the day. The patient now loses his healthy and rugged complexion, becomes weak, pale and emaciated, and acquires a peevish, hypochondrical, and sometimes even melancholic disposition. Sometimes there is a greatly increased

excitability of the genital organs, causing priapism and satyriasis; but gradually the morbid excitement passes over into a condition of weakness, erections cease to occur, emissions take place oftener, and the patient creeps about like a pitiable shadow of his former self. With these symptoms are generally associated a paretic condition of the bladder and rectum. The urine is discharged feebly and slowly, and the bladder is seldom completely emptied. The bowels are generally constipated; but incontinence of urine and feces sometimes exists, so that the patient has to be very hasty in his evacuations in order to protect himself.

After the condition above described has existed for some time, the disorder of locomotion peculiar to the second stage begins to attract attention. The patient finds, perhaps, more or less difficulty in dressing and undressing. He cannot button and unbutton his clothes, or tie and untie his cravat, with the usual facility. But it is in attempting to walk that he experiences the greatest difficulty. This act, the proper performance of which requires a nice adjustment of a large number of muscles, he is unable to execute in a natural and firm manner, not so much from lack of muscular power, as from loss of co-ordination. He has lost, to some extent, control over his muscles. While he is still able to exercise the *power* necessary for the execution of a given movement, he is unable to properly perform it, especially if it be a complex one, simply because he is unable to properly combine and harmonize the action of the necessary muscles. The consequence is, that when he attempts to walk, he staggers like a drunken man. This is not a mere figure of speech, for persons so afflicted are often accused of being intoxicated; yet to the experienced eye there will be no great difficulty in differentiating between the two conditions. In the one case there is muscular contraction or rigidity; in the other, muscular relaxation. The difficulty of standing and walking is so great, that the patient requires the aid of his eyes to prevent himself from falling. Even then he is obliged to make considerable efforts to preserve his equilibrium; and when he walks, he does so with his legs apart, like props, that he may more easily balance himself. Trousseau

compares the movement to that of one learning to walk on a tight rope.

In the first stage there is often a state of hyperæsthesia, but in the second stage there is more or less anæsthesia, even when there is no loss of cutaneous sensibility. It generally takes the form of numbness or heaviness, and, beginning in the toes or feet, gradually spreads upwards to the abdomen and chest, where it produces more or less dyspnœa. The sense of pain may be lost to such a degree that neither pinching or pricking can be felt; or it may be so changed in character as to lose all its acuteness. The sense of touch may also be lost, or so impaired that the patient cannot distinguish the nature of an object by the feel; nor can he always tell you where he himself is touched. In some cases the patient is unable to distinguish between heat and cold. The loss of sensibility in the feet is one of the most constant and striking symptoms of the complaint, so much so as to constitute an important point in the differential diagnosis.

In the third or last stage of ataxy, the symptoms of the two preceding periods become more marked and severe. Sensation suffers to a greater extent than before, and want of coördination becomes more striking; but what specially characterizes this stage is loss of muscular power. Up to this time the patient, though unable to properly guide or govern his movements, has shown no lack of muscular power to execute them. Now, however, he experiences more or less difficulty in moving as well as in guiding his limbs; and if he tries to walk, his feet drag on the ground. In other words, there is paralysis as well as incoördination. As the disease advances, the muscles waste and undergo fatty degeneration. Spasms also occur, especially at night, and also in damp weather. The paralysis extends to the bladder and rectum, producing incontinence of urine and feces. The patient becomes blind from atrophy of the optic nerve. Long confinement to bed, and impaired nutrition, lead to decubitus, blood-poisoning and tuberculosis, which finally end in death.

Diagnosis.—There can be no difficulty in forming a correct opinion as to the character of this disease, after the peculiar

gait has manifested itself, as at this stage it is only necessary to test the muscular power, in order to decide whether or not there is any real paralysis. But as incoördination does not set in until the second stage, or until the disease has made considerable progress, it is of the highest importance, with a view to prompt and correct treatment, that an earlier diagnosis be established. Electricity cannot be relied upon in these cases as a means of differentiation, for, although in the great majority of cases of paraplegia, for example, the electro-muscular contractility generally diminishes in proportion to the degree of paralysis, there are exceptional cases in which the response to the electric current is normal. It is true, if, in the history of the case, we discover the co-existence of two or more of the prodromic symptoms, we shall have good grounds for entertaining a strong suspicion of the existence of ataxy. For example, if a patient suffering from strabismus and double vision tells us that he has had spermatorrhœa, and also occasional rheumatic or neuralgic pains, in other words, if the symptoms of the first stage are clearly defined, we are justified, perhaps, in pronouncing the case one of locomotor ataxy. But it is different if we have only one or two of the premonitory symptoms present. In such cases the value of Westphal's symptom of the "tendon reflex," or what is called the "phenomena of the knee," can hardly be overestimated. Westphal demonstrated the fact, that, in the healthy subject, if the ligamentum patella is struck somewhat forcibly, while the knee is bent at an obtuse angle, a sudden contraction of the anterior muscles of the thigh will occur, which is generally combined with an instantaneous upward movement of the leg. But in locomotor ataxy this symptom of the "phenomena of the knee" does not occur. This discovery has been so fully confirmed by Erb and others, that in all cases where the phenomena are wanting, even though the other symptoms are barely sufficient to excite a suspicion of tabes, we may safely rely upon it as furnishing conclusive evidence of the existence of the disease. On the contrary, we may conclude that the presence of the phenomena of the knee with neuralgic or rheumatic pains excludes their ataxic origin.

Causes.—Locomotor ataxy generally occurs between the ages of thirty and sixty years. It is met with much more frequently in the male than in the female sex, Romberg placing the proportion as high as eight to one. Excesses in venery, exposure to wet and cold, excessive fatigue, intemperance, the immoderate use of tobacco, syphilis, and concussion of the spinal marrow by a fall or blow, are the causes usually assigned for its production. Soldiers are particularly liable to it, probably because they are so much exposed to the influence of most of these exciting causes. While syphilis and excesses in venery are generally regarded as the chief causes of this disease, the influence of tobacco in its production is shown by Tamissier's observation, that out of twenty cases of locomotor ataxy, fourteen were great smokers, five moderate, and but one abstainer. In women the disease is supposed to be due to difficult parturition, accidental injuries of the spine, etc.

Pathology.—In all well-marked cases of locomotor ataxy, there is degeneration, with subsequent atrophy and sclerosis, of the posterior columns of the spinal cord and the posterior roots of the spinal nerves. The characteristic anatomical change appears to consist in a greyish coloration of the white substance of the posterior columns, occupying the whole space between the opposite insertions of the posterior roots of the spinal nerves. Together with this change, we have hyperplasia of the neuroglia, or proliferation of the connective tissue of the cord, disappearance of the nerve-cells, the formation of amyloid corpuscles, and atrophy of the normal fibres. These changes begin at the bottom of the posterior median fissure, and advance on each side towards the surface, forming a wedge-shaped mass of degenerated tissue along the length of the cord. The posterior roots of the spinal nerves undergo in most cases similar changes to those of the cord; but the affection of the nerve-roots is secondary to that of the columns, the former often appearing healthy while the columns are diseased, but never the reverse. The alterations are most marked in the lower portion of the spinal axis, and diminish from below upward, vanishing at the *calamus scriptorius*. The cerebellum, though examined with the greatest care, has never exhibited

any trace of the disease. The cerebral nerves, however, generally show the characteristic alterations, especially the optic nerve, the nervous constituents of which are softened or destroyed, and replaced by connective tissue, amyloid corpuscles and granular matter. Ultimately, the degenerated nerve-substance shrinks and hardens, constituting atrophy and sclerosis of the essential elements of the affected tissues. Hence the disease is sometimes called "posterior spinal sclerosis." Signs of inflammatory action have been discovered in the membranes of the cord, but as the evidences of inflammation are not constant, having been observed in only about one-half the cases examined, they are probably more accidental than pathognomonic.

Prognosis.—Romberg takes a very gloomy view of locomotor ataxy, predicting a fatal result in every case. Remak and Benedict, on the contrary, claim to cure most of their cases. The truth appears to be, that the disease is not always progressive, some cases entirely recovering; at least they so far recover as to suffer no further inconvenience from the disease. Such a result, however, we think is very rare. A much larger proportion of cases stand in abeyance, or undergo amelioration, while others progress without interruption to a fatal termination. It is not probable that a complete cure can be effected after the degenerative process has proceeded so far as to cause marked incoördination; certainly not unless a retrogressive metamorphosis can be established in the affected tissues. At present we have no satisfactory evidence that such renewal of diseased nerve-tissue is, or ever can be effected.

Treatment.—If, as above stated, the disease has progressed to such an extent as to produce its graver manifestations, we can probably do but little for it. For example, if it has gone so far that the patient can no longer walk without holding his eyes to the ground, a radical cure is not to be expected; but if the changes are still molecular, or, as we sometimes say, functional, *electricity*, faithfully and properly applied, may effect an absolute cure. And if syphilis be at the bottom of the trouble, our task is still more easy; while if venereal excesses have simply exhausted the resources of the nerve-

cells in the cord, simple rest may be all that will be required. If tobacco is the cause, the nature of the difficulty is similar to that of the tobacco amaurosis, and will require similar treatment. Electricity, in the form of *faradization* or *galvanism*, should be applied every twenty-four or forty-eight hours, the former to the affected limbs, and the latter to the spine; placing the positive pole at the nape of the neck, while the negative pole is swept up and down the spinal column.

Karl Pauli recommends, as the very best means of treatment for the acute lancinating pains so common in locomotor ataxy, the *lukewarm baths* introduced by Westphal. These are to be frequently or almost constantly employed for three or four weeks. After they have begun to take them, patients express themselves as absolutely requiring their repetition.

When other means fail of relieving the shooting pains, Dr. Langenbach stretches the principal nerve-trunks.

Illus. 81.—K., æt. 40, was taken sick a few months ago with the symptoms of locomotor ataxy. The ataxy was fully developed when entering the hospital, and he especially complained of lightning-like shooting pains in all four extremities, Romberg's symptoms as well as the typical disturbances of sensibility were present, especially in the lower limbs; the legs were thrown apart when placed upon the ground, and he could not distinguish whether he had anything under his feet. Sense of constriction around the waist; reflex excitability somewhat increased; knee phenomena not present, but a high degree of myosis and cutaneous hyperæsthesia, especially on the anterior surfaces of the thighs. All these disturbances of innervation also present in the arms, but in a less degree. As other means failed in relieving these shooting pains in the left sciatic nerve, the injected and somewhat smaller nerve was stretched intensively, under the influence of an anæsthetic, and then treated antiseptically. When consciousness returned, the pain was gone, and the motory and sensory paralysis which followed lasted only a few days. During another operation, both the crural and the right sciatic nerve were stretched under antiseptis. All pains were gone, and the patient regained the consciousness of his feet, and as he

steadily improved, he could finally be considered nearly cured of his ataxia.—*B. K. W.* 48, 1879.

Esmarch has also been successful in relieving the severe pains in this manner.—*Cbl. f. Nervenheilk.*, 1880, 21.

Eulenmeyer has gone so far as to perform the operation with a view to cure the ataxia. His patient was a man of thirty-nine with well-developed tabes. The ischiatic nerves on each side were stretched through incisions made in the ischiatic notch. The result was not altogether satisfactory; the patient was enabled to stand, which previously he had not been able to do, but the ataxia remained the same. Eulenmeyer thinks this may have been because the nerves were not stretched enough; but as the affection of the nerve-roots is secondary to that of the columns, it is not easy to see on what grounds he could hope to succeed in effecting a cure in this manner.

The internal remedies which have proved most beneficial in the different stages of this disease, are: *Agar.*, *Agnus cast.*, *Ant. crud.*, *Argent. nit.*, *Arnic.*, *Arsen.*, *Calc. carb.*, *Calc. hypophos.*, *Camph. brom.*, *China*, *Coccul.*, *Cuprum*, *Graphites*, *Ferrum*, *Ledum*, *Mercur.*, *Natrum mur.*, *Nux vom.*, *Oxal. ac.*, *Pic. ac.*, *Phosphor.*, *Phosph. ac.*, *Plumbum*, *Rhus tox.*, *Sec. cor.*, *Selen.*, *Staphis.*, *Strychnine*, *Sulphur*, *Sulph. ac.*, *Zinc. phos.* Many of these are merely palliative, or curative only of particular symptoms, such as the spermatorrhœa, shooting pains, etc. Of those which have proved curative of the graver symptoms of the disease, we notice the following:

Acid picrotoxicum.—In the "Allgemeine Homöopathische Zeitung," Vol. XCVII, No. 21, Dr. Dörr relates a case of advanced locomotor ataxy with amblyopia amaurotica, which he cured in a few weeks with the third decimal preparation of this remedy.

Argentum nitr. } These remedies are held in high estimation in this disease by many practitioners, especially Dr. Holcombe, who relates three cases in women, under the head of "Incipient Paralysis," either cured or greatly benefited.
Plumbum met. }

Illus. 82.—Married lady, æt. 50, past the climacteric period, suffering with general paralysis, symptoms progressive for the

last three years. Staggering gait when attempting to walk, especially with inability to lift the feet. Obstinate, at times almost insuperable constipation. Extreme weakness of the arms; difficult deglutition, especially of water or liquids. Want of command over the voice, sometimes amounting to aphonia. Allopathic tonics, frictions, baths, galvanism, etc., had all been used without effect. Gave her *Argentum nitr.*, 2d centesimal trituration, every morning, and *Plumbum met.*, 1st centesimal, every night. Duration of treatment, three months. Present state better—difficulty of deglutition almost entirely disappeared; voice improved in strength; bowels less constipated; mind more cheerful. She walks ten or twelve squares every day, attends church, lifts her feet fairly and easily, although she is still very easily fatigued or depressed, and totters or staggers when she attempts to move faster. Before the symptoms came on, she was subject to terrible neuralgic headaches. She has not had the least pain in the head until within the last month, since which time a few fugitive stitches remind her almost daily of her old complaint.—*Dr. Wm. H. Holcombe.*

Zinc phosphide.—Speaking of the lancinating pains so common in this affection, Karl Pauli says: "As for internal medication, nothing as yet has been found to exert more beneficial results than this remedy, two to four granules of which, each containing four milligrammes, are to be given each day."

Kali iod. } These remedies are of great value in syphilitic
Arg. nitr. } cases, but they should be used in succession, not in alternation.

Illus. 83.—We have treated but one case of this disease after the symptoms of incoördination had set in, which seemed to be much benefited by internal remedies; and that was a man 36 years of age, who was also suffering from constitutional syphilis. The disease was of more than two years standing. We kept him on the 1st dec. trit. of *Kali iod.* for nearly three months, after which we prescribed *Argentum nitr.*, 2d x, every night and morning, which was continued, with but short interruptions, for more than a year. Four years have now elapsed, and he can walk without difficulty, though still weak in his legs.

CHAPTER XI.

PARALYSIS AGITANS.

Paralysis agitans, or shaking palsy, is a disease that has often been confounded with chorea, tremor senilis and sclerosis of the cerebro-spinal axis (*multiple sclerosis*). It is characterized by tremor of the voluntary muscles, followed by paralysis of the same, and is progressive in its nature.

Symptoms.—The tremor generally commences in small groups of muscles, as of a single limb, usually one of the upper extremities. It has been known, however, to seize all four extremities at once. The tremor, while it affects both classes of voluntary muscles, as seen by the movements of pronation and supination, influences chiefly the flexor muscles. It also attacks the muscles of the neck, especially the sterno-cleido-mastoideous and trapezius muscles, as seen by the forward and lateral movements of the head. Even the tongue participates in the trembling. The tremor varies greatly in intensity, in some cases being scarcely perceptible, in others violently convulsive. These movements generally cease during sleep, but in advanced cases they have been observed in that condition. At times, especially when the convulsive movements are unusually violent, the patient complains of a sensation of heat, lasting several minutes, and most distinctly felt along the spine. The tremors are ameliorated by the horizontal position, but increase again immediately on rising. They are increased by every effort of the will to suppress them, and also by mental excitement; but they diminish whenever the patient makes a voluntary movement, and can even be momentarily arrested by forcibly exerting the muscular power of the

limbs, as in stamping with the foot, or striking with the hand. A valuable pathognomonic sign, first noticed by Savage and Sayer, is a tendency to run or fall forwards or backwards. Althaus mentions a remarkable case which he had the opportunity of observing for two years at the Hospital for Epilepsy and Paralysis, Regent's Park, in which "the patient, when placed upright in the centre of a room, would at once reel backwards until he found a support for his back, such as a table or the wall; and he could then stand for a long time. He had a difficulty in getting started for walking; but when he had once commenced, he could walk several miles without stopping. When he was obliged to stop, he would reel back directly. On crossing a street he had therefore to walk round and round if the road was not clear, as standing still was out of the question. He had no difficulty in going down stairs, but found it impossible to go up-hill. The most singular feature of this case, however, was that the patient only had the use of his arms and hands while walking. When standing and resting his back against the wall, his hands were utterly paralyzed; but as soon as he set off walking through the room, he could move his arms in all directions. Thus, it was while walking that he dressed and undressed himself, being too poor to pay for an attendant; and he even took his meals while promenading about his room, unless there happened to be somebody charitable enough to feed him." The symptoms in this case appear to indicate disease of the posterior part of the middle lobe of the cerebellum.

The second stage of the disease is marked by paralysis and muscular contractions. This does not occur until after the tremors have existed for a considerable period. In some cases there is only a slight paresis; while in others there is almost complete paralysis of all the voluntary muscles, excepting those of the eyes. The muscular contractions, which are confined chiefly to the flexors, are generally greater than in other paralytic diseases, probably in consequence of paralysis of the antagonistic muscles, which are mostly extensors. These contractions eventually lead to marked deformity, and when complete, render the patient perfectly helpless. The head is either

drawn downwards or to one side, the body is bent forwards, the knees are closely approximated, and the arms and feet are extended and rigid. During this period sensibility also becomes impaired. The extremities are affected with numbness, together with prickling sensations, and a certain degree of anæsthesia. The patient suffers more or less from headache and vertigo, appears depressed or dull of comprehension, and answers questions in a drawling and indistinct manner. Death generally occurs from nervous exhaustion, preceded by pulmonary hypostasis or œdema, and a condition of marasmus followed by delirium and coma.

Diagnosis.—Paralysis agitans is so often confounded with other tremors, that we here present the differential diagnosis, as given by Prof. Choostek, at length:

1. *Tremor senilis* begins on the head, and then attacks the lips, the tongue, and far later the extremities; it is a symptom of senility, and we never see there the parietic states characteristic of paralysis agitans.

2. *Tremor mercurialis*.—Etiology; chronic stomatitis, etc.; paralysis of rectum and bladder, which is never observed in paralysis agitans.

3. *Tremor saturninus*.—Etiology; bluish-grey edge of the gums, dingy coloring of the skin, nervous disturbances, lead-colic, paralytic state of the extensors of the upper extremities, epileptiform and eclamptic states, amaurosis.

4. *Tremor potatorum*.—Etiology; the tongue is easily attacked; it appears early in the morning with an empty stomach, and is diminished by taking the usual stimulant; chronic gastric and bronchial catarrh, amblyopia, even amaurosis, finally delirium tremens.

5. *Tremor simplex*, called by Sanders *Dysteria agitans*, appears in younger persons, and is never found in combination with parietic states, nor with contraction, propulsion or retropulsion.

6. *Multiple sclerosis*.—It is a symptom of youth, whereas paralysis agitans hardly ever sets in before forty years. Tremor only appears in sclerosis when motions are intended—for example, when the patient wishes to carry the spoon to the mouth; in paralysis agitans, on the contrary, the tremor is

also observed during perfect rest; it may be increased from an intention to motion, or from mental excitement, but ceases when the part affected is supported. In paralysis agitans, the tremor begins in the upper extremities, or in the hand, and progresses; but rarely attacks the neck or trunk. In sclerosis, the head is first attacked, and then the neck. In paralysis agitans, debility of the affected parts is soon added to the tremors, whereas in sclerosis the tremor is added to an already existing paralysis, showing itself as paraplegia, hemiplegia, as crosswise paralysis (facialis of one side, extremities of the other), or finally as paralysis glosso-labio-pharyngea. Sensibility is not dulled in paralysis agitans, whereas in several cases of sclerosis, dulness of several parts—for example, in the trigeminus—has been observed. Cephalic symptoms are never absent in paralysis agitans; vertigo, on the contrary, is observed early in most cases of sclerosis; also headache, and sometimes sleeplessness. Nor does paralysis agitans show any disturbances of the organs of sense; whereas in sclerosis, nystagmus is frequent, also dilatation of the pupils, strabismus, disturbances of hearing, tasting, or smelling. In sclerosis we also meet an irregular beat of the heart, palpitations, alternately frequent and slow pulse, paresis of the rectum and bladder, vomiting; whereas, in paralysis agitans no symptoms of the circulation, or of the abdominal organs, are shown. In paralysis agitans we meet slight stammering only from word-motions; in sclerosis it may become a monotonous speech at first, and end in raphonia. In paralysis agitans the flexors of the upper extremities are especially attacked, whereas in sclerosis the paralyzed muscles, especially the extensors of the lower extremities, are attacked by tonic spasms; where the upper extremities are in spasmodic action, we find them in close proximity to the trunk. The affected extremities show in sclerosis the symptoms of spinal epilepsy, as soon as they are passively bent or become affected by other stimuli, which is not the case in paralysis agitans.

Etiology, Pathology, etc.—Paralysis agitans is chiefly a disease of advanced life; only exceptionally does it occur at an earlier age than fifty years. It is more frequent in men

than in women, in about the proportion of two to one. Anxiety, grief, losses in business, severe mental shocks, hard labor, bodily deprivations and injuries, appear to be the chief causes in its production. Nothing is definitely known as to the pathology of the disease, no constant lesion having been found in connection with it. Few, if any, cases of the malady ever entirely recover.

Treatment.—We have but little to offer in the way of treatment. *Electricity*, either in the form of *faradization* or *galvanism*, has in some instances appeared to produce temporary benefit; and if methodically and perseveringly applied may, under favorable circumstances, prove curative. The internal remedies which have hitherto yielded the best results, are: *Camphor bromatum*, *Hyoscyamus*, *Mercurius*, *Plumbum*, and *Tarantula*.

Camphor brom.—The most that can be claimed for the bromides in the treatment of paralysis agitans, is, that in moderate doses they are capable of moderating the violence of the disease and ameliorating the condition of the patient. For this purpose, the Camphor bromide, in doses varying from one and a half to fifteen grains daily, appears to be the most efficient.

Illus. 84.—Three women in the Salpêtrière, under the care of M. Charcot, of the respective ages of fifty, sixty, and sixty-seven years, were attacked by paralysis agitans and pronounced incurable. They took from twenty centigrammes to one gramme (three to fifteen grains) of the *Bromide of Camphor*, daily, in quantities varying from one to ten dragees, in progressive doses. A marked amendment followed.—*M. Bourneville*.

Tarantula.—The pathogenesis of this remedy shows it to be the true *similimum* of this disease, and therefore we are not surprised that it proved curative in the following case:

Illus. 85.—Mrs. K., æt. 61, of strong constitution, but has seen a great deal of trouble during her life. Menstruation ceased at the age of fifty-two. In 1863 she suffered from severe pains in the left arm, so that she could not put her hands to her head, which left some trembling of the hand, which became aggravated by every mental trouble. In 1870 a fire broke out in her neighborhood, frightening her dreadfully,

and since then the trembling has increased and now affects all her extremities. During the siege of Paris, she was exposed to all the disagreeable situations incident to the war, and no wonder that her disease increased upon her. The pains became so intense that she could not rest during the night, and the itching and crawling on her left leg obliged her to rise and to walk about during the night. Simple baths aggravated the pains, and the only place where she felt somewhat comfortable was in the fresh air, even during the night. Hospital and private practice exhausted itself in vain to give her relief. Thus she came in my hands to try homœopathy as a last resource. We found intelligence and memory considerably diminished; trembling, pricking, and much sensation in the phalanges of the hands and feet, so that she was unable to perform any fine work. Motobility and sensibility unaltered; neither paralysis, anæsthesia nor hyperæsthesia. The head trembled just as the left foot and arm, and a slight tremor could be perceived on the tongue when she opened her mouth. She could only sleep for a few minutes, as the pains woke her up in spite of her sleepiness, and this want of rest told fearfully on her. No appetite, chronic constipation, a stool could only be forced by enemata. Since her menopause she had acne in the face; the ophthalmoscope showed a slight hyperæmia of the retina, and an analysis of the urine only revealed an excess of uric acid, showing itself by rhomboidal crystals. We gave her for some time Bellad., Nux vom., Iodine, Secale, Croton, without any relief, when further studies led us to *Tarantula*, which we gave in the twelfth dilution in water, a tablespoonful every three hours. Under its influence sleep returned to her, gradually the violent trembling diminished, and after a steady treatment for six months with the same remedy we could pronounce the patient perfectly cured—*Dr. Cramoisy* (*Bulletin de la Société Med. Hom. de Paris*).

CHAPTER XII.

SCRIVENER'S PALSY.

Scrivener's palsy, or writer's cramp, is a peculiar kind of spasm, affecting the muscles of the thumb, index and middle fingers. It is not confined exclusively to writers, but affects telegraphers, engravers, musicians, painters, sewing women, milk maids, and others, whose occupations are such as to greatly cramp and fatigue the affected muscles.

Symptoms.—The disease manifests itself by uncontrollable movements in the thumb, index and middle fingers, excited by any attempt to write, paint, or sew, so that the pen or other instrument is no longer under the direction of the patient, but moves about in an irregular and unsteady manner, producing very different results from those intended by the operator. "The more," says Romberg, "the patient persists in his attempt, the more the difficulty of using his pen increases; and to the visible and sensible contractions of the muscles of the thumb, contractions of the forearm, and even of the upper arm, are often superadded. Abnormal sensations, especially of a sense of weight and constriction of the hand, or of pain extending from the upper arm to the back, are occasionally present. It is diagnostic of these attacks, that they are instantly arrested when the individual ceases writing; and that the hand is capable of every other combination of movements and exertions." The disease generally sets in gradually, but Dr. Hamilton reports a case which occurred immediately after finishing a large extent of copying. Although authors, clergymen, and other professional men who have considerable writing to perform, are subject to the complaint, it is much more

common among clerks, book-keepers and copyists, whose occupations are such as to admit of little or no rest to the overworked muscles. Of the twenty-three cases reported by Hamilton, fourteen, or nearly two-thirds of the whole number, were clerks, four were lawyers and musicians, and the remaining five included a clergyman, an engraver, a stenographer, a type-setter and a cigar-maker. Other observers have met with similar results. Thus, of the one hundred and twenty-five cases reported by Beard, only about seventeen per cent. were professional men; all the rest were clerks, book-keepers, merchants, copyists and agents. Those who write carelessly are, as we should expect them to be, less subject to the complaint than those who write carefully and plainly. The disease evidently consists in overworking certain muscles in a certain way; in other words, it is a special form of fatigue. When the patient attempts to use the fingers in any other manner, or for any other purpose than that which brought on the spasm, he generally meets with no difficulty. This shows that it is not simple paralysis that causes the trouble, but rather the irregular and spasmodic contractions excited by fatigue or overwork. The final result, however, is the same, as the patient eventually becomes, so far as the particular occupation that caused it is concerned, perfectly helpless.

Diagnosis.—The symptoms of this disease are so peculiar, that there would appear to be but little danger of mistaking it for any other complaint. Paralysis saturninus bears some resemblance to the disease, but in lead poisoning the paralysis generally affects a greater number of muscles, and is also more complete. Moreover, in drop-hand the patient usually has control over the index finger. Progressive muscular atrophy often commences in the thumb, but the atrophy precedes the paralysis, whereas in the disease under consideration, the reverse is the case; the paralysis, if it exists, precedes the atrophy. Local paralysis from other causes, such as cold or exposure, may be distinguished by careful attention to the symptoms.

Etiology, Pathology, etc.—The disease is chiefly confined to the male sex, and to the middle period of life; in short, to those whose occupations are such as to predispose them to the

disease. There can be but little doubt, therefore, that the excessive use of the affected muscles is the chief, if not the essential cause in its production. Still, the etiology of the complaint is not fully made out, as thousands of people constantly pursue the occupations that are supposed to give rise to it, without ever suffering any such consequences. Perhaps heredity may act as a predisposing cause, as the disease has been known to occur in different members of the same family. As to its pathology, nothing is definitely known. Hammond and others are of the opinion that the disease is of central origin, and due to disorder of the motor cells, but the evidence of this is not conclusive. Others regard the disease as purely local, affecting only the muscles and nerves. The prognosis, according to Romberg, is bad, especially in all confirmed and long-standing cases, but in the early stages it is undoubtedly curable. Mr. Solly describes several cases where judicious treatment, combined with absolute rest of the affected muscles, led to the most satisfactory results.

Treatment.—Entire cessation of writing, or of the particular employment that has led to the complaint, is essential to recovery. It is true, some patients avoid the necessity of giving up their occupations entirely, by making use of such mechanical appliances as will relieve the strain upon the affected muscles, and this, if effective, may be regarded as equivalent to the required rest. Thus, book-keepers and other penmen, by making use of the "ring pen-holder" may be able to guide the pen successfully without holding it in the usual way. Others learn to write with the left hand, and thus relieve the affected member until a cure is effected; but as there is a strong tendency in such cases for the disease to attack this hand also, it would be better not to employ it in this manner. *Galvanism* and *massage* have proved of considerable value in incipient cases, and so have *stimulating baths* and *embrocations*. Strommeyer applied the principle of *tenotomy* to the cure of this affection, and in one case with complete success, the patient being able to resume his writing in two weeks after the subcutaneous division of the tendon of the long flexor of the thumb. Dieffenbach, however, performed the same operation several times without success.

Of the following list of internal remedies, which has been recommended for writer's cramp, three have been credited with a cure, namely, *Arnica*, *Gelsemium* and *Strychnia*: *Arnica*, *Belladonna*, *Causticum*, *Gelsemium*, *Nux vomica*, *Rhus tox.*, *Ruta*, *Secale*, *Silicea*, *Stramonium*, *Staphysagria* and *Zincum*.

Arnica.—This remedy is specially indicated when the spasm is due to fatigue or overexertion. It is also indicated on general principals as a remedy for cramp, and also for paralytic conditions.

Illus. 86.—Thos. S., book-keeper, æt. 34, was obliged to relinquish his position in consequence of a cramping of the thumb and first two fingers of his right hand, whenever he attempted to write. For the previous sixteen months he had been constantly engaged in writing up and posting three sets of books, which had occupied all his time during that period, from seven in the morning until ten at night. For the last sixty days he has been under allopathic treatment, which has consisted in the daily application of *electricity*, rubbing in *hartshorn liniment*, and taking an internal remedy having a bitter taste, probably *Strychnia*. As he appeared to get no better under this treatment, he thought he would try homœopathy, although, as he stated, he had no faith in it. I placed him at once upon *Arnica*, 12th dil., enjoined absolute rest of the affected member, and gave him a first decimal dilution of *Arnica* to use twice a day as an embrocation, with instructions to apply it in such a manner as to obtain the benefits of massage. I intended, also, if necessary, to employ galvanism, but it was not required. In about three weeks of the above treatment he began to mend, and in four months after taking the first dose of *Arnica*, he was able to resume his labors as an accountant. He was recommended to frequently change the size of his penholders, generally using those that were large and light, to rest the tired muscles as much as possible, and at all events, at least three times a day, and to knead the hands and fingers thoroughly every day, by way of prevention. Three years have since elapsed, and he has complained of no further trouble, except that the fingers sometimes get stiff and tire easily. —*Hart*.

CHAPTER XIII.

APHASIA.

The term *aphasia*, which is derived from the Greek *a*, not, and *φασις*, speech, is used to denote that state of the nervous system in which the patient has lost the power of expressing his thoughts in intelligent language. It was formerly called *aphemia*, from *a*, not, and *φειμι*, I speak; but Trousseau, on the advice of a learned Greek, substituted for it the term *aphasia*, as being more appropriate. There are two principal varieties of the disease, the *atactic* and the *amnesic* or *amnemonic*. In the former, the patient is unable to so coördinate the movements of the tongue and lips as to express what he desires to say; in other words, there is loss of motor coördination of words. In the latter, although he may have the right idea in his mind, he cannot express it, because he cannot remember the proper words; he has lost, so to speak, his vocabulary. These distinctions also apply to the loss of the faculty of writing, which is called *agraphia*. In *atactic agraphia* the patient is unable to form the separate letters; he has lost the power to write. In *amnesic agraphia*, on the contrary, he can write, that is, he can form letters and words, but they convey no meaning; it is all jargon.

History and Description.—Dr. Gall, as early as the year 1810, located the seat of language in the anterior lobes of the brain. Fifteen years later, Bouillaud came to the same conclusion, basing his opinion on the fact, that disease of the anterior portion of the brain always causes the loss of intelligent language. But it was not until the year 1861 that the left anterior lobe was found to be its special seat. In that year a paper

written by the elder Dax was published, in which he showed that hemiplegia of the right side of the body is generally associated with loss of language, and therefore that the seat of language is in the left anterior lobe of the brain. In the same year, Broca, from two post-mortem examinations which had just been made at the *Bicêtre*, deduced the strange conclusion, not only that the faculty of language has its seat in the left anterior lobe of the brain, but that it occupies exactly the left external frontal convolution, where the anterior lobe meets the middle lobe immediately in front of the fissure of Sylvius. This conclusion, though based upon only two autopsies, was supported by a number of previously published cases; and a large number of cases have been observed since. Thus, in two cases which proved fatal in the Edinburg and Glasgow Infirmarys, Drs. Sanders and Gairdner traced the disease to the exact spot described by Broca; while in fifteen cases examined in Paris, Broca's convolution was found diseased fourteen times, and in the remaining one there was fatty degeneration of the capillary vessels of the same part, though the chief seat of the disease was in the left insula and the left parietal lobes.

In most cases of aphasia, the patient is able to pronounce a few short words, such as "yes," "no," and "damn it," although utterly unable to converse. But polysyllables, and even such monosyllables as require marked pressure of the tongue and lips to pronounce them, they cannot articulate. This is well illustrated by a case reported by Dr. Osborne. The patient, whose intellect was unimpaired, read a sentence from the By-Laws of the College of Physicians, as follows:

"It shall be in the power of the college to
"Be mather be in the kondreit of the compestret to
 examine or not examine any licentiate, previously to
samtreis am treit entreido am temtreido, mestreiteriso to
 his admission to a fellowship, as they shall think fit."
his eftreido tum bried roderiso, of deid dafdrir des trest."

It will be seen that after he got fairly started, he was able to pronounce correctly nearly all the words composed of only two or three letters until near the close of the sentence, when the weak coördinating power that he possessed seems to have

become exhausted, and he stumbled at every word. On another occasion he read the same sentence in a very different manner, so far as the larger and more difficult words are concerned, but the articles and prepositions were for the most part correctly spoken. It is evident that the whole difficulty here was a lack of power to articulate correctly; that is, it was a well-marked case of atactic aphasia.

Dr. T. D. Davis reports a singular case of amnesic aphasia. Although the patient could repeat distinctly any word after you pronounced it, he would miscall the commonest article. Wanting his hat, he would ask for his boots, and be surprised when they were brought to him; and it was sometimes impossible for him to express his wishes without resorting to signs. This shows that the loss of pantomimic expression, known as *amimia*, does not necessarily go with aphasia; it is, in fact, much rarer, and probably requires a more extensive lesion to produce it. But the most singular fact about this case was, that even in his worst stages he could frame and pronounce accurately a long prayer. Dr. Davis says he would arise from a well-worded prayer, and be utterly unable to name his own children. Here, no doubt, both sides of the brain were trained for prayer.

Agraphia is generally associated with aphasia, as in the following case, reported by Luczkiewicz: A man, æt. 30, who died of a purulent, circumscribed arachnoiditis, would say in speaking, "my floor hurts me," "I want fish," meaning water, unconscious of his mistakes; later, only the first words, perhaps, of a sentence would be right; and although he would recognize every visitor, look for the physician, point to his head for relief, take his medicine, and micturate freely, he spoke only words without sense. One evening he ordered some tea, but nobody understood him; pencil and paper being handed to him, he wrote: *Grehbogzk*; got up, went to the closet and brought out some tea.

Kussmaul describes a peculiar variety of aphasia, which he calls *verbal deafness and blindness*. The patient has no difficulty in speaking and writing words, but he does not understand any thing that is said to him, nor any thing that he reads,

and yet his sight and hearing are both good. Such a person is apt to be thought deaf or insane, because, not understanding what is said, his language appears irrelevant.

Some cases of aphasia are transitory. They probably arise, in most instances, from simple congestion, and pass away as soon as the hyperæmia is relieved. Trousseau relates a case where a physician was obliged to keep his bed on account of a sore leg. After overexerting his mind by reading, he suddenly found that he could not understand any more what he read; he wished to call somebody to his room, but found that he could not speak, although he could move the extremities and the tongue in all directions. He was bled, but speech returned before the bleeding was finished.

We have already stated that aphasia is generally associated with right-sided hemiplegia. Dr. Séguin found that in two hundred and forty-three cases of hemiplegia arising from occlusion of the middle cerebral artery, the left hemisphere was affected in two hundred and twenty-six, and the right in only seventeen. The intellect frequently suffers in these cases, but the aphasia is no more due to the impairment of the mental faculties than is the hemiplegia, but both result from the same cerebral lesion; hence the coincidence of the two diseases.

Etiology, Pathology, etc.—Numerous post-mortem examinations have established the fact that cerebral abscesses, tumors, clots of blood, sclerosis, softening, or any form of localized injury affecting, by pressure or otherwise, the third left frontal convolution of the brain, may produce aphasia. By far the most frequent causes are embolism and thrombosis of the middle cerebral artery or its branches. In the two hundred and forty-three cases of hemiplegia above-mentioned, the left middle cerebral artery was occluded in two hundred and twenty-six, in all of which there was aphasia with paralysis of the right upper and lower extremities. In the remaining seventeen cases, the right middle cerebral artery was plugged, but there was no loss of speech. From this it appears, that the part of the brain nourished by the middle cerebral arteries presides over both speech and muscular motion in the extrem-

ities. This furnishes the key to the two kinds of aphasia, the atactic and the amnesic. When the cells of grey matter, which originate the force that controls speech, are destroyed, all idea of language is lost, and the patient can neither speak nor write. But when the fibres that conduct the force are destroyed, the motor power is lost which supplies the mechanism by which speech is produced; though the patient may still be able to write what he wishes to communicate, provided the injury does not also involve the cerebral centre presiding over that faculty, which is in close proximity to the other.

Although the centres of innervation are double, training and exercise have rendered most people left-brained and right-handed. It is now a well-established fact in physiology, that in infancy the left side of the brain is the earliest and the fullest developed, and this explains the reason why nearly all mankind are right-handed. The same is true of speech, which is influenced by the same difference of development. There is not only earlier foetal development of the left hemisphere, but a greater supply of blood is sent to it, and there is a greater development of convolutions in the left frontal portion, where the faculty of language is situated. Consequently, the right side is left untrained, eventually ceases to exert any influence in the production of speech, and so loses its functions. This, however, is not the case with those who train both hemispheres alike, as pianists; nor with left-handed people, who, it appears, generally train the right hemisphere for language. A unique case of this kind is related by Moreau, of a left-handed woman in whom the whole third left frontal convolution was wanting, but who could nevertheless speak and read very well.

Treatment.—It is no doubt a very fortunate thing for many cases of aphasia that the cerebral centres are doubly arranged, as thereby patients often gradually recover their powers of speech, notwithstanding the want or inefficiency of treatment. It is probable, also, that occasionally, after the function has ceased in consequence of the blood having been suddenly shut off by an embolus from the portion of brain supplied by the middle cerebral artery, the collateral circulation becomes free

by the enlargement of connecting arteries, and the function of speech is restored. These considerations should lead us not to overestimate the effect of remedies in aphasia, as many of the cases reported cured might have recovered just as soon had no medicine been taken.

It is plain that the main object of treatment should be, if possible, to remove the cause; and if this cannot be accomplished, to diminish its effects. Thus, if syphilis is at the bottom of the trouble, *Kali iodatum*, persistently given, will be likely to produce good results. If it depends simply on cerebral congestion, such remedies as *Belladonna*, *Gelsemium* and *Veratrum viride* will prove beneficial. If, on the contrary, there is an anæmic state of the brain, *Kali bromatum* or *China* may be required. Such cases as depend upon epilepsy should receive the treatment required for the cure or amelioration of that disease. In short, the primary affection, whether it be cerebral hyperæmia, hemorrhage, tumor, softening, or abscess, should receive special attention and treatment. Instead, therefore, of giving a list of remedies which, so far as any particular case is concerned, may or may not be appropriate, we shall present a few clinical cases by way of illustration. We give them, however, only for what they are worth, since, as already explained, we can never be certain that the medicine prescribed is entitled to any credit as a curative agent in this class of cases.

Kali brom.—The long use of this remedy, in the hands of Dr. Hammond, has been known to produce aphasia; it is therefore homœopathically indicated in such cases, especially if it coexists with an anæmic state of the brain.

Illus. 87.—Mrs. S. A. Sawyer, æt. 45, while sitting in a chair, experienced a "curious sensation" in the head, and laid down upon the bed. Dr. St. Clair Smith was summoned, and found her in a partially unconscious state, with slight and brief stertor in breathing. She was, however, easily aroused; seemed to know the doctor, and smiled when addressed, but could not speak. The mouth, tongue and right arm were partially paralyzed, but there was no weakness of the leg nor ptosis. On the following day the patient was discovered to be aphasic,

could only say "yes" and "no," and called all the letters of the alphabet "m." She seemed to be in possession of all her mental faculties, with the exception of memory for words and speech. The next day, being shown a hat, she named it properly, but called everything else by the same name. When shown a watch and asked if it were a hat, she shook her head, but uniformly called it "hat," if asked to name it. Prescribed *Kali brom.*, 3d attenuation. She continued to improve until she could converse without much difficulty, and finally recovered, though slowly. The only remedy used was *Kali brom.*³ —Dr. W. S. Searle.

Stramonium.—This remedy is specially indicated in hemiplegic cases, where the attack is preceded by severe headache, restless sleep full of dreams, rush of blood to the head, and confusion of intellect with maniacal laughter and actions, or dulness and stupefaction.

Illus. 88.—Miss M. R——, æt. 17, complained for several months of a deep-seated pain in her head, for which she was treated allopathically, but with little benefit. She also suffered from noises in her ears, sleeplessness, and confusion of mind. Although expecting soon to graduate, she was compelled to lay aside her studies, as all mental labor greatly aggravated the suffering. One evening after taking a short walk she felt "something give way" in her head, and fell unconscious to the floor. I was sent for and found her in a comatose state, breathing loud and stertorous, the pulse laboring, the pupils somewhat dilated, the head hot and deeply buried in the pillow. Prescribed cold compresses to the head, and *Gelsemium*, 1x dil., in water, every hour. The next morning I found her speechless and partially paralyzed on the right side, but conscious and able to express herself by signs. Pulse 74, full and strong; temperature in the axilla 97°. Continued treatment. At 6 p.m. was again summoned, and found the patient in a highly excited state, hissing in a very peculiar manner, and seemingly frightened at some mental object. She tried to get up in bed, but not being able to use her right arm and hand, could only push herself over on her side. Was greatly surprised at the patient's condition, so different from what was to

have been expected, especially as she was under the influence of Gelsemium. The symptoms appearing to call for *Stramonium*, I prescribed the third dilution in water, a teaspoonful every hour until the patient should become quiet, then every three hours. Learned the next morning that she had taken but six doses of the remedy, having gone off into a quiet sleep after the second dose. Found her perfectly sensible and rational, but unable to say anything but "ray." If asked the name of anything, she would say "ray," smile, and shake her head. The treatment was continued for a period of about six weeks, the only change being in the potency, which was changed, once a week, from the third to the sixth, twelfth, thirtieth, two-hundredth, and finally the one-thousandth. She made a good recovery, but it was nearly a year before she was strong, and able to resume her studies.—*Hart*.

Phosphorus.—This remedy is indicated in cases where the symptoms preceding the attack show general depression of the nervous system, as manifested by weakness, mental torpor, restlessness and indecision.

Illus. 89.—Dr. P. H. P. was often noticed in conversation to use many wrong words, and frequently failed to convey any meaning. He also used many wrong words in writing, and made many charges to wrong people. He soon forgot where he had started for, and often asked passers-by where he was going. About two months ago he found that he used his right leg with difficulty, and his right arm and hand seemed unwieldy. On trying to talk, he had lost at least half the words that he wished to use. Two weeks ago he found himself unable to walk, and his right arm had become paralyzed. Speech was entirely lost. At this time I saw him. He understood all that was said to him, and could, after a great effort, answer "yes" and "no." I saw him again about three days ago, when I found him able to walk, and to move his arm, but not his fingers. His vocabulary had increased, but he could not complete a sentence. After making many fruitless efforts to express his meaning, he would relieve himself by saying "damn it," which came easily enough. He had taken two doses of *Phosphorus* on his own responsibility. He can now repeat

words after hearing them, but calls everything by wrong names. Three weeks after this his daughter wrote me as follows: "I think you will be glad to hear that father is improving in every respect. He is able to use his hand much more, and walks almost as well as before the attack. He talks very much better, often speaking whole sentences, and very seldom fails to make himself understood."—*Dr. G. W. Boyce.*

Kali iod.—This remedy is specially indicated in syphilitic and epileptic cases.

Illus. 90.—E. F., æt. 11, fell down stairs and struck his head. He became immediately unconscious. The unconsciousness lasted full four weeks, and when he awoke, the faculty of speech was found greatly diminished, but there was no other form of paralysis. He had to think for a long time before he could find the right word and he could repeat it only with difficulty. (*Aphasia atatica and amnestica.*) Three months afterwards he was able to enter school but learning was difficult, and he had to learn over again how to write (*agraphia*). After the fall he had a number of epileptic fits, at longer or shorter intervals. *Kali bromatum* and *Atropine* failed to relieve, but *Kali iodatum* steadily given effected what appears to be a perfect cure.—*Prof. C. Berger.*

CHAPTER XIV.

PARALYTIC APHONIA.

Aphonia, from the Greek α , not, and $\varphiωνη$, voice, is a term used to denote a more or less complete loss of the voice. It is altogether different from aphasia, which we have just considered, and also from mutism, which is congenital, and which renders the individual unable to utter any articulate sounds.

Symptoms.—The mechanism by which sound is produced, generally called the organ of voice, is the larynx. The successful operation of this organ requires three distinct processes, namely: 1st, the expiration of air; 2d, the opening of the glottis; and, 3d, the tension of the vocal cords. It follows, therefore, that anything interfering with expiration, or with the natural action of the laryngeal muscles, may cause aphonia. The characteristic symptoms of paralytic aphonia are: total loss of voice, with absence of dyspnœa—a very important symptom—dilatation of the glottis, passiveness of the arytenoids and vocal cords, and extreme contraction of the expiratory muscles during attempts at phonation. If only one vocal cord is paralyzed, the healthy one sometimes passes beyond the middle line in the act of phonation, and displaces the paralyzed one. In these cases the voice is fine and weak, even in the middle notes; and is altogether absent, or becomes a mere squeak, in the higher ones, especially after it has been much exercised in reading or speaking. Intermediate states sometimes occur, in which the nervous influence is wholly withdrawn from one side and only partially from the other. The voice is then deep, unsteady, incapable of modulation, and soon exhausted by exercise.

Etiology, Pathology, etc.—The most frequent causes of aphonia, in general, are various organic changes in the vocal organs, partly resulting from diseases in the larynx, such as chronic laryngitis, œdema glottidis, polypi, vegetations, etc., and partly from pressure produced by abscesses, tumors and other morbid growths. It may also be caused by any form of pulmonary disease which interferes with respiration, such as emphysema, phthisis, and pneumonia. But simple or uncomplicated aphonia, such as we are here considering, is paralytic or functional, and may be either *direct* or *reflex*. Thus, it may depend upon some interference with the function of the recurrent or inferior laryngeal nerve, which is the nerve animating all the laryngeal muscles, excepting the crico-thyroid. Or the function of the pneumogastric nerve itself, or of one of its branches, may be so impaired as to cause aphonia. Or the muscles of only one side of the larynx may be paralyzed, causing deep hoarseness and partial suppression of the voice. Reflex aphonia occurs in consequence of the effect produced on the nervous centres by verminous irritation, puerperal convulsions, the anæmia resulting from repeated hemorrhages, and the sudden suppression of cutaneous or exanthematic eruptions. It also frequently originates in the reproductive organs of hysterical women.

Prof. Ziemssen refers the phenomena that characterize paralytic aphonia to paralysis of the recurrent nerves; but M. Bernard has shown by numerous experiments, that while the spinal accessory specially influences the vocal muscles, and are therefore the true vocal nerves, the respiratory muscles of the larynx are under the control of the inferior and superior laryngeal nerves. According to this authority, paralysis of these nerves, instead of dilating the vocal ligaments, approximate them, so that every effort at inspiration tends to render the passage of air through the glottis more and more difficult by obstructing the laryngeal aperture. This is true whether one or both of the vocal cords are paralyzed, but of course the dyspnœa, which is only observed when there is considerable extra exertion, as in walking or ascending a hill, is greatest when both are affected.

Diagnosis.—Whenever we can avail ourselves of the aid of the laryngoscope, the diagnosis of paralytic aphonia is, as a rule, comparatively easy, as in all such cases one or both vocal cords exhibit diminished motion, although no mechanical obstruction is present. Exclusive paralysis of both crico-arytenoid muscles manifests itself by obstructed respiration, and the laryngoscope shows that even when the breathing is deep and prolonged, the edges of the vocal cords are closely approximated. In paralysis of the transverse arytenoid muscles, the posterior part of the rima glottidis opens in the form of a triangle. If only one vocal cord is paralyzed, the voice is weak, deficient in *timbre* and volume, and sometimes limited only to a few notes. Gerhardts draws attention to the fact, not yet explained, that in the unilateral non-central paralysis of the vocal cords, the same side of the soft palate will also be paralyzed. There are two or three forms of paralytic aphonia which may be diagnosed without the aid of the laryngoscope, namely, the reflex, the intermittent, and the form caused by severe mental shocks, in which, although the patient is unable to articulate words, he is able to cough.

Prognosis.—The prognosis in paralytic aphonia may be regarded as favorable, in all cases where there is no incurable peripheral obstacle to phonation, caused by mechanical pressure or otherwise, nor any lesion of the nervous centres. At the same time, it is best not to be too positive in predicting a speedy restoration of the vocal function, as nothing is more uncertain, even in the most promising cases. The reason of this, probably, is because, although there is no apparent or incurable lesion, the case is complicated with some degree of inflammation, hypertrophy, fatty degeneration of the muscles, or nervous derangement, which neither time, skill, nor patience are likely to remedy.

Treatment.—*Electricity* has proved successful in the hands of Althaus, Bamberger, Sedillot and others. A single operation with the *galvanic* current will sometimes restore the voice as by magic, but in most cases repeated applications are necessary to the gradual restoration of the lost function. When the glottis remains open during the efforts at phonation, if the

galvanic current is employed, the negative pole should be applied over the arytenoid cartilages, and the positive pole over the crico-thyroid muscle. The operation should not be undertaken until after the subsidence of any inflammatory action that may happen to exist; and then it may be repeated daily, but should not be continued longer than from three to six minutes at any one time. The constant current should be preferred when the affection depends on deficient nervous vitality, and the interrupted or induced current when the laryngeal muscles have lost their contractile power. It is important, also, in making use of the constant current for nervous debility, to remember that the positive pole is centripetal and stimulating, while the negative pole is centrifugal and sedative. For this reason the centrifugal current is indicated in convulsions, and the centripetal in paralytic affections. This explains the frequent failures in the treatment of paralysis with the galvanic current, in consequence of its improper application. But the best form of electricity for paralysis of the vocal muscles and relaxation of the ventricular bands is the induced or secondary current (*faradization*), though the cure is not always rapid. Gerhardt and Philepeaux found their cases intractable to electricity, so long as an inflammatory condition existed in the fauces; and the former therefore attributed some cases of the disease to reflex action excited by pathological changes in the fauces. *Massage* and other local manipulations are recommended by some authorities. Thus, Roebuck treated cases of this disease successfully by simply touching the paralyzed vocal cord; and Ollivier advises to press with the thumb and index-finger against the upper cornua of the thyroid cartilage, while the patient breathes deeply and exercises his voice during the pressure.


There is generally abundance of room for the employment of homœopathic remedies in these cases, if only for the purpose of removing the inflammation, anæmia, and other abnormal complications which are generally associated with them; but these it is unnecessary to more than allude to in this connection. The internal remedies which have proved most efficient in overcoming the paralysis, are *Causticum* and *Gelsemium*.

Causticum.—This remedy is specially indicated in cases complicated with laryngeal and bronchial irritation, especially if there is also an anæmic condition of the lining membrane of the larynx.

Illus. 91.—Mr. S., æt. 31, has lost his voice for the last thirteen weeks, during which he has been treated allopathically by a specialist, who pronounced the case to be one of "paralysis" of the vocal cords. When the patient consulted me he could only speak in a whisper. I ordered a Turkish bath, with the following prescription: *Causticum*^{2x} ʒj.; aqua ʒviiij.; to be used, or rather inhaled, with Dr. Moore's spray-producer, four times a day. His voice was fully restored in two days.—*Dr. R. T. Massy.*

Gelsemium.—This remedy is specially indicated in reflex cases, especially such as arise from cerebral, intestinal, or uterine irritation.

Illus. 92.—Miss S., æt. 34, consulted me for deafness and loss of speech. Five years ago she was afflicted with neuralgia, chiefly in the head, neck and shoulders. Her physician, unable to relieve her, finally gave massive doses of quinine and morphine. This quieted the neuralgia, but left her nearly deaf, and at intervals afflicted with what appeared to be hysterical spasms of the throat, sometimes extending to the chest. The paroxysms last from thirty to forty minutes, render her unconscious, and leave her very much exhausted. They return sometimes every day, at others only after several weeks. After prescribing Pulsatilla and Lachesis without benefit, I gave her *Gelsemium*, 2d dil., two doses three times a day. Two weeks afterwards I called and found that she had fully recovered her voice, and the hearing was also greatly improved.—*Dr. J. Hawks.*



PART III.

DERANGEMENT OF THE SENSORY FUNCTION.

We propose to describe under this head all diseases, not otherwise classified, of which pain or excessive sensibility is the principal or characteristic symptom; that is to say, all hyperæsthetic disorders. In addition, therefore, to neuralgic affections, properly so called, we shall include such diseases as megrim, spinal irritation, and angina pectoris, the pathology of which is not yet fully settled.

CHAPTER I.

NEURALGIA.

The term *neuralgia*, derived from the Greek *νεῦρον*, a nerve, and *ἄλγος*, pain, is used to denote pain of a purely nervous character, generally confined to the origin, course, or termination of one or more nerves, and unaccompanied by fever, inflammation, or any appreciable organic lesion.

Symptoms.—Neuralgic pain occurs in paroxysms of longer or shorter duration, and is usually followed by complete remissions. When it occurs in the course of a nerve, it is of a shooting or piercing character; but when it affects the terminal branches, it is finer, and apt to be of a stinging or burning sort, unless the pain is felt in some solid organ, like the liver, when it may be of a stabbing or intermittent aching nature. It is generally unilateral, or confined to one side of the body, but it may attack both sides at once, or fly from one side to

the other in rapid alternation. It is usually centrifugal, passing from the larger to the smaller branches, but it is sometimes centripetal. It is more violent at one moment than another, and is usually either mitigated or absent for an indefinite period. Sometimes the paroxysms occur at intervals of only a few seconds; at others they are separated by hours, days, and even much longer periods. The intervals may be regular or irregular, the former constituting what is called *periodical neuralgia*. Generally the pain is worse towards evening and in the forepart of the night, and remits towards morning, when it may either pass off altogether, or undergo aggravation. The pain is frequently accompanied with spasmodic twitchings of the adjacent muscles, and if a secreting organ is in the vicinity, it is more or less excited. Previous to the attack the patient is apt to feel chilly, but when the paroxysm is at its height, there is usually some heat and redness of the affected parts, due to vaso-motor paralysis. It is a singular fact, that in most cases, notwithstanding the severe suffering and apparent hyperæsthesia, there is an actual loss or diminution of tactile sensibility. The anæsthesia may be readily demonstrated by means of the æsthesiometer, the points of which, in order to be felt, require to be placed at considerably greater distances apart in well-marked cases of neuralgia, than is necessary when the nerves are in a healthy condition. This anæsthesia is often associated with more or less numbness in the affected part, constituting the condition termed *paræsthesia*. As paræsthesia is generally a marked symptom in organic lesions of the nerve-centres, Erb thinks it indicates in these cases a similar condition of the nerve trunk. There is generally more or less sensitiveness to pressure in the course of the affected nerves, especially at certain points. These tender spots correspond for the most part to the points of exit from bony canals, or the places where the nerves penetrate fibrous faciæ. They are particularly noticeable over the spinous processes corresponding to the sensory roots of the spinal nerves, and are an important means of diagnosis in such cases. Anstie draws attention to the changes which the hair undergoes in many cases of neuralgia. He observed that the hair became

grey on the same side in eleven cases out of twenty. Most of these were cases of neuralgia of the first division of the fifth pair of nerves, affecting the eyebrow on the affected side. He also noticed, in his own case especially, that the greyness on the affected side increased during, and for some time after, a paroxysm, and subsequently returned to its natural color. In chronic cases the hair is apt to fall out, or to become dry and brittle. Integumental changes also occur, the skin becoming thick, coarse, and more or less discolored. The duration of the disease is very uncertain. It is seldom limited to a single attack, but the patient, as a general rule, is liable to a recurrence of the disease at uncertain intervals for months, and even for years.

Varieties.—Neuralgia may attack any part of the body supplied with nerves, but in no part does it occur so frequently as in that supplied by the branches of the fifth pair, where it goes by the common name of *tic-doloureux*, otherwise known as *facial neuralgia*. Next in frequency is the variety termed *sciatica*, or, as it is sometimes called, *ischadic neuralgia*, the seat of which corresponds to the course of the sciatic nerve. Other common forms of superficial neuralgia are, *hemicrania*, where the pain is seated just above the orbit, and *intercostal neuralgia*, commonly, but improperly, called *pleurodynia*. We also have *cervico-occipital*, *cervico-brachial*, and *lumbo-abdominal neuralgia*, the names of which are sufficiently descriptive of their several locations. Besides these forms, there are the *visceral neuralgiae*, the principal of which are, *gastrodynia*, located in the nerves of the stomach; *angina pectoris*, involving the nerves of the cardiac plexus; *hysteralgia*, or neuralgia of the uterus; and *diaphragmatic*, *hepatic*, *nephritic*, *ovarian*, *testicular*, and *urethral neuralgia*, etc.

Causes.—The chief predisposing causes of this affection are heredity, debility, anæmia, and exposure to malarious influences. Heredity plays a very important part in the etiology of this disease. It is no uncommon thing for neuralgia to appear in particular families through successive generations. Such families are also observed to be more liable to other nervous diseases, such as epilepsy, paralysis, hydrocephalus, in-

sanity, etc., showing that there is in these cases some congenital imperfection that predisposes to the complaint. Next to heredity, the most powerful predisposing cause of neuralgia is debility. Whatever, therefore, lowers the tone of the system, whether it be self-abuse, wasting discharges, insufficient or improper nourishment, or mental anxiety, will greatly favor its occurrence. Amongst the exciting causes, fatigue, exposure to cold and wet, the abuse of stimulants and narcotics, and the retrocession of rheumatism and cutaneous eruptions, are perhaps the most frequent. There are also various local causes, such as tumors and bony spiculae pressing on particular nerves, wounds and diseases (especially cancer) implicating nervous branches, and reflex irritation, such as occurs in diseases of the heart, liver, kidneys, etc.

Diagnosis—The diagnosis is generally sufficiently easy, provided all the circumstances bearing on the case be taken into consideration. When the pain takes the course of a nerve, we know at once that it is neuralgic; but when it affects an organ, space, or spot, we have to consider the character of the pain, and the presence or absence of such other circumstances as would be sufficient to produce it. For this purpose we take into consideration, not only the special symptoms in the case, but the hereditary predisposition, if any, the peculiar constitution of the patient, and the various etiological influences, both local and general, which are affecting the system.

Prognosis.—The prognosis is generally favorable. Death very seldom results from attacks of neuralgia, however severe and protracted, though the patient's life is often rendered miserable by them, and the health is sometimes greatly impaired. But most of the neuralgiæ are susceptible of cure, and all of them may be considerably mitigated.

Treatment.—The treatment of neuralgia will be given at length in the several chapters devoted to its various forms (q. v.).

CHAPTER II.

HEMICRANIA.

Hemicrania, also called *migraine*, *megrim*, *cephalalgia periodica*, and *sick headache*, is a form of neuralgia which, as the name imports, is generally limited to one side or one half of the head. Sometimes the pain is more general, involving the greater portion of the head and face; but more frequently it is confined to only a small portion of the cranium, and seldom passes beyond the mesial line of the head.

Symptoms.—In most cases the nerves of special sense are first affected, the actual attacks being preceded by noises in the ears, glittering before the eyes, yawning, rigor, irritability, nausea or vomiting, prostration, and an indiscrible sense of discomfort. In other cases there is more or less oppression of the chest or of the heart, which may last for hours before the paroxysm sets in; but such cases are not common. The attacks usually commence on one side of the head, generally the left, and spread rapidly towards the median line, where the painful sensations are sometimes arrested; but oftener they extend to a greater or less distance beyond it, and occasionally they spread over the whole head. The pain, however, is itself a fixed one, its principal seat being on one side of the head, and generally limited to a small portion of it. These are the typical cases of hemicrania; but not unfrequently, the pain, instead of beginning on the temple, commences at the inner angle of the orbit, producing pain, redness and tenderness of the eye, and extending towards the nose. This is the form to which the term *megrim* is usually applied. The terms “*megrim*” and “*migraine*,” however, are merely contractions of “*hemi-*

crania," and therefore really mean the same thing. The pain of hemicrania is variously described by patients; but it is usually of a dull, aching and pressing character. No single term, however, will serve to express it in all cases, for it is not only peculiar but variable, or rather, it is different in different cases, being sometimes boring and throbbing, as well as tensive and pressing; in which cases it is generally combined with throbbing of the carotid and temporal arteries. The pain is often excruciating in its degree, especially when it is combined with extension to the branches of the fifth pair, rendering both the face and scalp sensitive, and giving rise, as a general rule, to nausea, and sometimes to vomiting. Oftentimes, when the paroxysm is at its height, the patient cannot bear the least noise or movement; even the motion of the eyeballs will sometimes increase the suffering. The features are generally pale and shrunken, the eye of the affected side reddened and contracted, the action of the heart lowered, and the temperature of the extremities considerably diminished. The attacks usually set in early in the morning, and continue the greater portion of the day, seldom lasting longer than till sun-down; but they may commence and end at any hour of the day. Sometimes they have a decidedly periodic character, occurring in a quotidian, tertian, or quartan form, like ague. Occasionally they return at regular intervals of several weeks or months; but generally they observe daily accessions, returning either in the morning or at noon. After the paroxysm has run its course, the patient falls into a disturbed sleep, from which she generally awakes with a slight dulness or confusion of the head, but otherwise free of her complaint.

Causes.—Sex and heredity are the chief predisposing causes of hemicrania, though exposure to malarious influences may also be so regarded. The great majority of cases occur in females between the age of puberty and the climacteric period. There is but little doubt that derangements of the menstrual function have much to do with its occurrence in many cases; and it is especially frequent among the anæmic, and those of a highly excitable nervous organization. The disease, however, is not by any means confined to weak and nervous females,

for it is occasionally met with among strong and robust men, especially high livers. The disease is frequently hereditary, especially on the mother's side, and is most apt to occur in families some of whose members have been afflicted with epilepsy or other nervous disorders. Being due to derangement of the circulation, it may be caused by anæmia, plethora, fatigue, hot weather, mental anxiety, excessive bodily or mental exertion, or any means capable of producing high cerebral excitement.

Diagnosis.—The disease is liable to be confounded with neuralgia trigemini and rheumatic cephalalgia. The former is distinguished by the character of the pain, which is shooting, darting or lancinating; it also follows the course of the nerves, and has the tender points of Valleix at the cranial foramina. Rheumatic cephalalgia is generally combined with rheumatism in other parts, is rarely periodical, is usually aggravated by atmospheric changes, and is not attended with throbbing of the carotid and temporal arteries.

Prognosis.—Hemicrania is of itself never fatal, though productive of any amount of suffering. When it depends on malaria, or any other removable cause, it is curable; but when it is hereditary, or associated with any other form of nervous derangement, it is apt to be extremely obstinate. It often ceases at the climacteric period, or is greatly lessened in intensity. Sometimes, also, it disappears spontaneously, or in consequence of some unknown change in the constitution of the patient, which renders the latter less susceptible to the influence of the ordinary exciting causes of the disease.

Pathology.—The pathology of hemicrania has long been a mooted question. Some have regarded the disease as an intracranial neuralgia, some as hyperæsthesia of the brain, some as neuralgia of the temporo-frontal nerves, and some have ascribed it to hysteria, or to menstrual irregularities. Du Bois Raymond, who was himself a sufferer from the disease, made a study of the phenomena, and came to the conclusion that the disease is due to an affection of the cervical portion of the sympathetic, or of its centre in the medulla oblongata, and giving rise to spasm of the vessels. This, he thinks, is evidenced by

the paleness and shrunken condition of the features, and the dilatation of the pupils, the circular fibres of which are supplied by the sympathetic nerve. The subsequent phenomena, also, are in harmony with this view, for after the paroxysm has lasted awhile, relaxation sets in, the vessels dilate, and warmth is restored to the affected parts. Mollendorf, however, who made an ophthalmoscopic examination of a patient laboring under an attack of hemicrania, found dilatation of the retinal and choroidal vessels, together with sclerotic injection, on the affected side, whilst the vessels on the unaffected side were perfectly normal. Moreover, the pulsations of the heart were retarded, the radial pulse small, and the extremities cold. In this case it appears there was vascular paralysis, due probably to irritation of the pneumogastric and other cerebro-spinal nerve-centres. These observations would seem to establish the fact that there are two kinds of hemicrania, one arising from spasm of the vessels, and the other from paralysis of the vessels, both of them due to irritation of the cranial portion of the sympathetic, and giving rise to disturbances of the sensory nerves of the affected side of the head.

Treatment.—Experience has shown that absolute rest, low diet, and complete exclusion of light and noise, are efficient means of mitigating the violence of the attack. About the only internal remedy that has proved of much value in cutting short the disease, is *Amyl nitrite*, the primary and secondary symptoms of which appear to correspond exactly with the two forms of the disease—the primary in the paralytic form, and the secondary in the spasmodic form. This will account for its reputed success in this disease in the hands of allopathic physicians. They have found that three or four drops, inhaled every fifteen or twenty minutes, frequently give speedy relief. *Electricity* has proven very beneficial in many cases, but is far from being a specific. The constant current should be used, and care should be taken not to make it too strong, for fear of producing amaurosis. But the main object of treatment is not so much the amelioration of the attack, as it is the radical cure of the disease. For this purpose we must make use of the specifically indicated remedy, and this will in most cases

necessitate a close study of the *Materia Medica*. Happily, there is no dearth of remedies presenting symptoms analogous to those of the disease, and from these we should select such as not only cover the characteristic symptom, but the constitutional condition as well. On account of the multiplicity of remedies adapted to these cases, we shall select for illustration only such as have received the approval of the profession.

Belladonna.—This remedy is specially indicated in attacks accompanied by congestion of the brain, heat and redness of the face, irritation of the sensory nerves of the eye, and dilatation of the pupils. It acts best on the right side, and when the pain is aggravated by light, heat and motion, particularly stooping.

Illus. 93.—A slender young man, æt. 26, has suffered with nervous headaches (on the right side) from his fifteenth year. It commences early, is drawing, pressing, commences in the right orbit and extends into the eyeball, forehead and temple; increases until noon, wears off in the evening. Aggravated by stooping forward, reading and writing. One drop of *Belladonna*³⁰ every four to five days, cured in four weeks.—*Schwarze, in Hom. Heilungen, vii.*

Illus. 94.—Miss W. has suffered for years with a headache which comes on every day suddenly, lasts three or four hours, and suddenly disappears. Is aggravated by motion, noise, light, and during the menses. The pain is located over the right eye. Has been treated with the lower potencies for three years without benefit. *Belladonna*²⁰⁰, one dose per day, cured in one week.—*Dr. T. S. Hoyme.*

Bromine.—Neuralgic headache, with raging pain over the left eye; darting pains through the left eye, with throbbing in the left eyelid, extending to the eyebrows, forehead and temple.

Illus. 95.—Mrs. N., suffering with hemicrania of the left side of the head, found her symptoms daily growing worse and painful. Her medical attendant ordered *Quinine*, in large doses, but with no perceptible benefit. *Bromine*⁶ was given, for one day only, and all trace of the disease was gone. I have often given the *Bromine* in cases of hemicrania affecting

the left side only, and have yet to find the first case that was not relieved by a single dose, if given as high as the 6th. If the pain is on the right side, I have never seen the first indications of good from the use of this remedy.—*Dr. E. C. Beckwith.*

Bryonia.—Deep stitching pains in the left side of the head, with great weight and pressure from behind forward, and accompanied by nausea and vomiting; rush of blood to the head, with feeling of compression and darting pains, especially on one side; heat and congestion, with pressure from within outwards; soreness of the scalp and throbbing over the whole side of the head; aggravation from motion, especially rising, stooping or sitting down.

Illus. 96.—An elderly lady, æt. 53, had been suffering with an attack of nervous sick headache for thirty-six hours. The pains were generally diffused, but somewhat more acute on the right side. She was only comparatively comfortable when *perfectly quiet*, but the least motion aggravated the headache, and also rendered the nausea more intense. *Nausea and vomiting followed every attempt at assuming the sitting posture.* The symptoms pointed so clearly to *Bryonia*, that I prescribed it, a few pellets of the 200th in water, two teaspoonfuls to be taken every ten minutes for six times only. In half an hour the headache and nausea had disappeared, and she slept soundly all night. The next morning she was somewhat weak and dizzy, but was free from headache and gastric distress.—*Dr. J. M. Kershew.*

Calcarea.—Hemicrania occurring in delicate or scrofulous constitutions, with irritable and obstinate dispositions, and attended with nausea and vomiting. It is aggravated, and frequently induced, in such cases, by mental and bodily exertion, and by exposure to the hot sun, or to cold and damp weather.

Illus. 97.—Young lady, æt. 20, of a mild but provokingly obstinate disposition, and in delicate health, was subject to violent attacks of sick-headache. She was warned of the coming pain by a dull heavy sensation in the head on arising in the morning, which sensation increased with the day until she was compelled to go to bed. These attacks were accompanied with nausea and vomiting, and recurred every seven or eight

days, or after any unusual mental exertion or excitement on the day previous. The particular attack for which I was consulted, came on after spending two rainy nights in a tent in the woods while camping last summer. Several doses of *Calcaria*²⁰⁰, taken early in the day, postponed the attack, nor has she had one since.—*Dr. W. E. Leonard.*

Cyclamen.—Cerebral congestion with violent left-sided headache, heat and throbbing in the head, glittering before the eyes, obscuration of vision, dizziness, chilliness and nausea; aggravated by motion, especially stooping, and in the afternoon and evening.

Illus. 98.—Mrs. C., at the climaxis. She gets red in the face, burns in the vertex, deathly sick, no life in her, sparks before her eyes; the headache begins in the morning, increases until she vomits, then it decreases; it is left-sided, comes on again in the evening; she is worse in the afternoon and evening (*Pulsat.*); also in the air and on moving (*op. Pulsat.*); there is also aversion to food and fat (*Pulsat.*); but there is heat of head and glittering before the eyes (*Cyclam.*). Lachesis¹² relieved but *Cyclamen*³ cured, and on every repetition of the sickness has afforded her prompt help.—*Dr. Ussher, Eng.*

Gelsemium.—Dr. Hale says of this remedy: "Hemicrania, when accompanied by abnormal symptoms of the eyes, such as dimness of sight or double vision, or with great sensitiveness to all sounds, will be promptly relieved by it. In nervous headaches, where the pain commences in the cervical portion of the spinal column and spreads thence over the whole head, it will afford prompt and timely relief."

Illus. 99.—A gentleman has had constant, gradually increasing headache for three or four months; dull, heavy pain, extending to the nape of the neck, frequent throbbing in the temples, and vertigo on rapid movement. I gave *Gelsemium*, a drop night and morning. For thirty-six hours the headache markedly increased after each dose; then a sudden throb, like a snap, took place in the centre of the head; the headache at once entirely ceased and has not since returned.—*Dr. C. Madden.*

Iris.—Headaches beginning with a blur before the eyes, of a

dull, heavy, throbbing character, accompanied with nausea and vomiting, and great depression of spirits.

Illus. 100.—A lady afflicted at intervals with a most distressing sick headache, and who had swallowed the whole allopathic and homœopathic *Materia Medica*, with only partial benefit, has been more relieved by *Iris* than by any other remedy I have yet administered to her. The pain, which is in the head, temples and eyes, is attended with most distressing vomitings, of a sweetish mucus; and occasionally, when with much straining, with a trace of bile. *Iris versicolor* is the only medicine which has much control over the stomach, arresting the vomiting very soon, and allaying in some degree the violent pain in the head, so that I have been asked by her whether I had not given her morphine.—*Dr. J. Kitchen.*

Kali bichr.—This remedy is indicated in that form of hemicrania that commences at the internal angle of the eye, involving the left eye and brow, and gradually spreading over the left side of the head; in many cases there is blindness, with aversion to light and noise; the pains are generally of a shooting character, and extend from the root of the nose along the left orbital arch to the external angle of the eye; in other cases the pain is dull, heavy and throbbing, and confined to small spots on one side of the head.

Illus. 101.—F. F., æt. 35, a pattern fitter, suffering terribly from hemicrania. Pain chiefly located over the left eye; sometimes, though seldom, passing to the right side. The pains always commenced at sunrise, increased up to 12 m., then decreased until sunset, when nothing remained except a soreness. Had suffered from these attacks every fall for eight years, and they always lasted from five to seven weeks. Gave *Kali bichr.*²⁰ Pain disappeared in a few days after taking seven powders.—*Dr. F. R. Schmucker.*

Natrum mur.—This remedy is indicated in cases of hemicrania occurring in scrofulous or scorbutic constitutions, in which the attacks are periodical, and attended with marked weakness, prostration, thirst, palpitation and nausea.

Illus. 102.—Mrs. A., æt. about 23, consulted me for a headache from which, she said, she suffered constantly, at least she could

not remember the time when she had been entirely free from it except for short periods; she awoke every morning with the headache, the pain increasing until midday, and continuing until sundown; she was weak; troubled a great deal with palpitation of the heart; mouth dry, but water tasted so bad she could not drink it. *Natrum mur.*³⁰ speedily cured.—*Dr. G. M. Ockford.*

Pulsatilla nigr.—This remedy is especially suited to semilateral attacks, where the pupils are contracted, pulse quick, small and weak, or full and strong, with feeling of weakness, or its opposite, great strength, feeling of chilliness, often followed by sweat, which is sometimes semilateral, nausea and vomiting, absence of thirst, alternations of flushing and paleness, worse before midnight. *Pulsatilla* is not only adapted to delicate chlorotic girls, and to weakly females suffering from menstrual irregularities, but also to hemicrania in the male sex, when attended with a feeling of intoxication and other characteristic symptoms.

Illus. 103.—J. V., æt. 42, every afternoon at half past four, although a temperate man, feels as if intoxicated; he has headache, with pain in the small of the back, is chilly during the day, afterwards sweats, has neither thirst nor fever. During the paroxysm he experiences a sense of lightness, and whatever he handles has no sense of weight; even the lifting of from fifty to a hundred pounds is as nothing to him. Prescribed *Pulsatilla*²⁶, three times a day, for two days. There has been no return of the symptoms from that day to this.—*Dr. N. C. Ricardo.*

Pulsatilla Nutt.—This remedy, like its congener, *Pulsatilla nig.*, is specially adapted to hemicrania arising from menstrual disorders, from mental exertion, or from anæmia. The pain is generally of a pressive or throbbing character, commences in the forehead above the orbit, and extends over the whole side of the head to the occiput. In some cases it involves the whole head and nape of the neck, and is attended with gastric disorder and chilliness.

Illus. 104.—A lady in the country had "sick headache," commencing in the middle of the day, with intense pain in one

side of the head and one eye, accompanied by chilliness, lowness of spirits, and finally vomiting. The vomiting usually relieved the pain, after which she could go to sleep. These paroxysms had occurred, usually, twice a week for several years. I gave her five drops of the 2d dilution of *Pulsatilla Nutt.*, three times a day, for four weeks. After commencing the medicine, she had but two attacks of the headache, the last paroxysm very light. It is now three months, and there has been no headache of any severity since.—*Dr. E. M. Hale.*

Sanguinaria.—*Dr. Hering* says: "This is the best remedy in most cases of migraine or sick headache. Still, it must prove most useful when the attacks occur paroxysmally, namely, every week, or at longer intervals; or when the pains begin in the morning, increase during the day, and last till evening; when the head seems to feel that it must burst, or as if the eyes must be pressed out, or when the pains are digging, attended with sudden piercing, throbbing lancinations through the brain, involving the forehead and top of the head in particular, and being more severe on the right side, followed by chills, nausea, vomiting of food or bile, forcing the patient to lie down and preserve the greatest quiet, as every motion aggravates the sufferings, which are only relieved by sleep."

Illus. 105.—*Mrs. H.*, a very fleshy lady, *æt.* 50, nearly passed the climacteric, complained of a distressing "sick headache" hanging about her for years. In some degree the symptoms were almost always present. A typical headache would commence in the forenoon, gathering violence with the hours until sunset, when it would quietly subside, or else would confine her to her bed for a day or two. The pains, which originated low in the occiput, drawing upwards in rays, located over the right, sometimes the left eye, attended with vomiting, often of bilious matter. She was subject to sudden flushes of heat, burning of the soles of the feet, and that singular symptom noted in *Hale's* third edition, "a quickly diffused transient thrill," felt at the remotest extremity. At times she had sensible throbbing of every pulse in the body. The urine was generally scanty before and during the severe headache, but quantities of clear urine would pass away when getting better.

Prescribed *Sanguinaria*²⁰⁰, six pellets night and morning, for a week. Eight months afterwards patient reported relief from the first dose, during the week complete relief, and from that time until now, not a vestige of the old complaint has shown itself.—*Dr. J. P. Mills.*

Illus. 106.—*Dr. Mills* regards what he calls "sun headaches," that is, those increasing in violence with the sun's ascent, decreasing as it declines, when preceded by *scanty urine* and pass off attended by *profuse flow of clear urine*, as indicating *Sanguinaria*, and the *urine symptom* as its *keynote*, giving the following case as an additional illustration: Mr. W., railroad engineer, was taken early in the morning with headache and nausea, the symptoms increasing hour by hour. At 4 P.M. the pain and distress had reached such a height that, fearing "brain fever," I was summoned. I found the patient on the bed groaning and writhing in agony, face very red, head hot, injected eyes, sensitive to light. The arteries about the head and in the scalp were distended like whip-cords, the blood coursing through them at a furious rate, giving a sensation to the head as if the scalp and temples were alive with irrepressible pulsations. The pain was over the whole head; paroxysms of retching occurred every few minutes, with such violence that I feared rupture of bloodvessels. I prescribed Bell., Glon., and Bry. in succession, but without benefit, not thinking at first of *Sanguinaria*, though I was aware that the headaches passed off with free flow of clear urine, and that he, being an engineer, would be subject to kidney trouble. At midnight a messenger came, saying that Mr. W. was wildly delirious, with no abatement of symptoms. I sent *Sanguinaria*²⁰⁰, to be given in water every half hour. Fifteen minutes after the first dose, symptoms began to abate; in an hour and a half, he fell into a quiet slumber for a little time, awaking quite relieved from the acute pain, but an intense soreness continued for two or three days, which compelled him to keep quiet or to walk with great circumspection.—*Idem.*

Sepia.—Hemicrania of a tonic character, caused by mental emotions, especially vexation, and attended with nausea,

vomiting, rigor, pale face and flying heat. Ameliorated by pressure, sleep and darkness. Periodicity is a marked symptom, especially in the female sex, to which this remedy is specially adapted.

Illus. 107.—Mrs. L., of a nervo-sanguine temperament, had for several years a headache recurring every Saturday; she sometimes thought it came from the noise of her children who were home from school on that day, but so sure as Saturday came the headache returned; the pain was of a boring, pressing character from within outwards, and was attended with nausea and vomiting; binding the head up tightly relieved it somewhat, and if she could get a good sleep would wake up much better. *Sepia* cured.—Dr. G. M. Ockford.

Spigelia.—Periodical headache, generally confined to the right temple, or to the left eye and left temple, pulsating, darting or boring, commencing every morning with the rising of the sun, reaching its height at midday, and gradually declining till the sun sets, and accompanied with pale face, nausea and vomiting. Aggravated by motion, stooping, noise, thinking, or mental emotion.

Illus. 108.—Miss T——, æt. 36, had suffered from periodical attacks of left-sided hemicrania for upwards of nine years. The attacks set in early every summer, and continued to recur regularly about every two weeks, lasting each time about three days, and compelling her during that time to exclude herself from society. The paroxysms, which set in just after sunrise in the morning, were of the most violent character, causing severe pulsating pains in the left temple and eye, and reaching their greatest intensity about noon, when they were attended with vomiting and retching, after which they gradually declined, and at sunset gave place to anxious and disturbed sleep. The slightest motion or noise greatly aggravated the headache; even the movement of the eyes would increase it. After the paroxysms subsided the scalp felt sore to the touch, and the brain confused. After trying two or three other remedies without any marked benefit, I placed her upon *Spigelia*³⁰, five pellets every night and morning for one week.

No more paroxysms occurred until July of the following year, after several weeks anxiety and attendance on a very sick brother. I again prescribed the same remedy in the same manner, and for the same length of time, since which she has been entirely free of headache, a period of more than four years.—*Hart*.

Sulphate of Nickel.—This remedy is indicated in periodical headaches attended with a sense of great fulness, heat and stupefaction, setting in on rising, and increasing until noon, with vertigo and nausea.

Illus. 109.—A woman suffered from distressing periodical headaches every two weeks, lasting three or four days. The pain was most acute at the root of the nose, and extended to the vertex and through the temples. She had some nausea but no vomiting. The distress was so great that she lay and groaned in anguish. After prescribing Cuprum, Ignatia, Sepia, Calcareia and Sulphur without any apparent benefit, I gave her two-grain doses of the *Sulphate of Nickel*, 3x trit., every day, which suspended the paroxysms four months—a respite she had not enjoyed for ten years.—*Dr. A. E. Small*.

Veratrum.—Headaches attended with great anxiety, fear, cold feeling, small, rapid, intermitting or slow pulse, nausea, and sometimes vomiting. The headache is occasionally attended by a sensation of warmth and coldness at the same time on the scalp, and sensitiveness of the hairs. There is sometimes cold sweats on the forehead, weakness, faintness, and profuse micturition. The attacks are generally nocturnal.

Illus. 110.—An inveterate case of chronic nocturnal headache, attended with drawing pains in both arms and frequent micturition; the attacks come on in the afternoon and continue into the night, the pain getting better towards morning; the patient is able to be about the house in the forenoon. Cured with *Veratrum album*⁴⁰⁰.—*Dr. Barrows*.

Illus. 111.—Mrs. O., æt. 27, has been a martyr to nocturnal headaches ever since she was thirteen years of age. They do not appear to observe any other form of periodicity, coming and going at irregular intervals, but always setting in just

after dark, and going off about three o'clock in the morning. They attack chiefly the left side of the head, and are attended with violent throbbing or beating, heat of the scalp, burning of the face, and vertigo and nausea on rising or sitting up. They are greatly aggravated by motion, mental excitement, and the erect position, and are always worse previous to, and at the menstrual period. *Veratrum*³⁰, night and morning, for six weeks, effected a complete cure.—*Dr. T. S. Strong.*

CHAPTER III.

NEURALGIA TRIGEMINI.

Neuralgia of the trigeminus, or fifth nerve, is variously known as *tic-douloureux*, *facial neuralgia*, *prosopalgia*, and *faceache*. It is not only the most common, but, with perhaps one exception, the most severe form of neuralgia. This susceptibility is partly due, no doubt, to the superficial relations of the nerve and its branches, and partly to the fact that most of its ramifications pass through very small and unyielding foramina. The disease may implicate one, or all three branches of the nerve. Most frequently it is the superior maxillary, or middle branch of the trigeminus, that is affected. When the pain is felt only in the terminal twigs of this branch, in the vicinity of the infra-orbital foramen, it is called *infra-orbital neuralgia*. At other times some portion of the ophthalmic division of the trifacial nerve is affected, constituting one of the sub-varieties of facial neuralgia, known as *orbital*, *supra-orbital* and *ciliary neuralgia*. When the dental branches of the superior and inferior maxillary divisions of the nerve are implicated, we have *dental neuralgia* or *odontalgia*.

Symptoms.—Facial neuralgia generally occurs in paroxysms of greater or less frequency, the attacks sometimes following each other in rapid succession, and at others separated by intervals of considerable length. The pains, which are generally sudden, and of a shooting, lancinating and jerking character, are not apt to be very violent to begin with, but they gradually increase in intensity until the paroxysm reaches its height, when they become so intolerable that the patient is often unable to suppress his cries. They follow the course of

the nerves, and sometimes extend, by means of the connecting twig given off by the trigeminus after its passage through the parotid gland, to the branches of the portio dura. They may also, by implicating the opposite branches, extend to the other side of the face. When the ophthalmic division is affected, the pain is generally first felt in the terminal branches near the supra-orbital foramen, or else in the trunk of the nerve at the bottom of the orbit. At a later period, the ciliary nerves become irritated, producing redness of the conjunctiva and lids, with perhaps more or less ciliary injection, pain, photophobia, lachrymation and swelling. The motor nerves of the face frequently become involved, causing the muscles supplied by them to twitch and jerk convulsively; and in some cases more or less spasmodic action occurs in more distant parts—the result, probably, of reflex action caused by the severity of the pain. The irritability of the affected nerves sometimes becomes so great, that talking, sneezing and chewing, or even currents of cold air, etc., will renew the attacks. The tender points of Valleix are the supra-orbital notch, the inner angle of the orbit, the junction of the nasal bone with the cartilage of the nose, the mental foramen, and a spot immediately in front of the ear. There is sometimes considerable constitutional disturbance associated with this form of neuralgia, especially when the ciliary nerves are implicated, as shown by loss of appetite, coated tongue, pains in the back, scanty and high colored urine, constipation, etc. The duration of the disease is very uncertain. When it depends on miasmatic influences it is more or less periodical and transient; in other cases it is apt to become continuous, subject only to daily exacerbations and remissions, the former usually occurring at night, and the latter in the morning.

Causes.—The etiology of this affection is often very obscure. Sometimes the attack is excited by such agencies as wounds, decayed teeth, cold, rheumatism, syphilis, poisonous cosmetics, suppression of cutaneous eruptions, the sudden arrest of accustomed discharges, etc.; and occasionally it can be traced to tumors or bony growths pressing upon the trunks of the affected nerves; but in very many cases no definite cause can

be discovered. Probably cold is the chief exciting cause, though there can be but little doubt that the disease is greatly aggravated, if not primarily induced, by such agencies as excess in venery, the immoderate use of tea, coffee and tobacco, the abuse of stimulating beverages, high living, late hours, severe mental and bodily exertion, mental emotions, and whatever is capable of lowering the tone of the nervous system. Whether sex predisposes to the disease is not certain, but as it exerts a marked influence in most forms of nervous disease, it is probably not without influence in this. There is no doubt, however, as to the effect of heredity in favoring its occurrence, the disease often appearing in different members of the same family, and in conjunction with other nervous affections, especially hysteria.

Diagnosis.—Neuralgia trigemini is liable to be confounded with rheumatism and hemicrania. From the former it may be distinguished by the character and severity of the pains, by the shortness of the paroxysms, and by the attacks being excited by such causes as a sudden jar or touch. From hemicrania it may be known by the transient and darting character of the pains, and by their corresponding accurately with the course and distribution of the nerves. Many cases of hemicrania, however, have their starting point, as we have seen, in the supra-orbital branch of the trigeminus; but these, instead of being confined to the trifacial nerve, soon extend over the scalp, and, by involving the sympathetic, give rise to vasomotor and sensory disturbances peculiar to that affection.

Pathology.—Not much is known regarding the pathology of facial neuralgia. In some cases the affected nerves have been found more or less red and inflamed, but quite as often the most diligent search has failed to reveal anything abnormal about them. There is no doubt, however, that the sympathetic is sometimes at fault, for in no other way can we explain such symptoms as contraction of the pupils, conjunctival injection, chemosis, and other ocular disturbances, flushing of the face, and the constitutional derangement sometimes met with; but it is not certain whether these disturbances are primary or only secondary phenomena; in other words, whether

the changes which take place in the sympathetic system are secondary to the trifacial disturbances, or *vice versa*.

Prognosis.—This disease, while not directly destructive of life, is sometimes so exceedingly severe and obstinate as to threaten to wear out the constitution of the patient, by undermining the general health, rendering the mind feeble, and the nervous system extremely sensitive and irritable. The chances of cure, in any case, depend upon whether the cause is, or is not removable. In the former case, as when the disease arises from cold, malarious influences, bad habits, or nervous debility, it will generally yield to the rightly-selected remedy; but when the affection depends upon organic changes, such as tumors, exostoses, and other structural alterations, it is very likely to prove permanent. At best, the patient is apt to suffer more or less from the complaint as long as he lives.

Treatment.—On the subject of treatment the author* has elsewhere said: "It follows from the purely subjective character and limited range of the symptoms, that the treatment of *protopalgia* needs to be conducted with special reference to the cause. Hence it becomes necessary, first of all, to institute a careful scrutiny into the general state of the patient's health, his habits and surroundings, traveling, as it were, beyond the boundaries of the symptomatic indications, in order to ascertain, if possible, the true cause of the malady. In this way the prescriber is enabled to make his anatomical, physiological and pathological knowledge contribute, not only to the diagnosis, but, in a large proportion of cases, to the cure of this obscure, obstinate and very painful disease. Even with all the light which can be thrown upon it in this manner, the practitioner will often have great difficulty in selecting a suitable remedy, and will as frequently be disappointed; but it is evident that in no other way, in many cases, can there be any reasonable hope of success. Thus directed, however, the symptomatic indications are generally sufficiently definite to suggest the proper remedy; and, as a consequence, *homœopathy* has produced many brilliant cures in the domain of this *opprobrium medicorum* of the old school."

* *Practice of Medicine*, p. 96.

Aconitia.—This remedy is indicated, according to Prof. Gubler, in every variety of trigeminal neuralgia. He says he has never known a neuralgia of the fifth pair, even *tic-douloureux*, to resist it. It, however, appears to be most effective in the congestive forms, or where it arises from cold or suppressed perspiration.

Illus. 112.—Some years ago, a patient who had long been the victim of obstinate trifacial neuralgia, had all the affected nerves excised by Nelaton. The operation only gave temporary relief, and the patient declared she would commit suicide. By the advice of Debout, *Aconitia* was tried, and after five milligrammes had been taken she was permanently relieved. In another patient, who had suffered agonies night and day, six milligrammes completely dissipated the disease.—*Prof. Gubler*.

Agnus castus.—This remedy is specially indicated in infra-orbital neuralgia, particularly if the pain is of a pressive, tensile character, or like a blow, and is relieved by hard pressure.

Illus. 113.—Miss S. E., æt. 40, large and fleshy, has suffered for more than two months past with pressing pains at the bridge of the nose, as if it were pinched in a vice. The pains come on suddenly, "like a flash of lightning," and often cause her to scream out. They are more severe upon the left side of the nose, and extend, modified in intensity, along the under margin of the left orbit, and are relieved by pressing the seat of pain hard with the fingers, when they disappear gradually, leaving a continual sensation of discomfort in the parts. She also has many momentary neuralgic pains in various parts of the body, coming and going without regularity. The infra-orbital pain, though generally of a pressive character, is at times like a severe blow, followed by a crawling, scalded feeling, or as if cold water were running down. There is some painful fulness and pulsating under the left eye, but no swelling. Patient fears a cancer, or some other "horrible disease." *Agnus castus*²⁰⁰ was sent her, with directions to take a dose night and morning. This speedily dissipated the pain, and, although more than a year has since elapsed, there has been no return of it.—*Dr. C. W. Butler*.

Argentum nit.—Prosopalgia frontales, when the pains are of

a sudden and rending character, extend into the orbit, and the eyeball feels as though it would be pressed out; face pale, sight impaired, and the affected parts more or less anæsthetic.

Illus. 114.—Anna Buden, æt. 50, a hard working widow, says that after taking cold she was seized by a violent, tearing, lightning-like pain in the right eyebrow, which extended to the point of the nose and into the orbit, so that it felt as if the eyeball would be crowded out, then over the right side of the forehead, radiating over the vertex to the occiput. The paroxysms appeared irregularly, sometimes at night, sometimes during the day, and left a feeling of numbness in the affected parts, and her ability to see at a distance was impaired. The pains occurred several times a day, so that she was unable to earn her living. She was admitted to the hospital of nuns in Prague, and was treated for six weeks without any improvement of her sufferings. Afterwards she was transferred to the Imperial Hospital, where she remained two or three weeks. She then returned to her home in the country for the benefit of the country air. Here she remained for a long time, but as the attacks increased in violence she at last consulted me. Discovering that *Argentum nitricum* corresponded to the entire case, even to the color of her face, I gave her *Arg. nit.*⁴, four drops in twelve powders, to be taken night and morning. After they were used, the pain ceased altogether, but two months afterwards a slight relapse occurred, when a repetition of the *Arg. nit.* was sufficient to complete the cure. Years have passed since that time, and she labors as formerly, but has had no return of the disease.—*Dr. W. Heyerberger.*

Atropiæ sulphus.—This remedy is often useful when *Belladonna* is indicated, but fails to relieve.

Illus. 115.—W. M., a young man of great physical endurance and of regular habits, was taken with a terrible pain in the right eye, running up into the temple. The face became flushed and the eyes looked wild, but the pain disappeared about noon, and did not return until the next day at 9 A.M. *Belladonna*⁵ was prescribed every hour. The following day the attack came on earlier, was more severe and lasted longer. *Belladonna tinct.*, in half drop doses every hour. The next

day the attack lasted until evening, and was accompanied by twitching of the muscles of the face, intolerance of light and noise, tongue yellow. *Belladonna*²⁰⁰, one dose every two hours. Next day worse. Patient insists on taking quinine. Gave him six powders of the third trituration. No improvement; patient thoroughly discouraged. Gave him one powder of *Atropiæ sulphas*, 3d dec. trit., dissolved in four ounces of water, a teaspoonful to be taken every hour. The second dose brought amelioration, and the next dose absolute relief, without return of the symptom.—*Dr. H. R. Arndt.*

The above case is given for what it is worth. Notwithstanding my confidence in the doctor's judgment, I strongly suspect it was the *Chinin. sulphas*³ that did the work, and the *Atropia* got all the credit. It is astonishing how little of the cinchona salt is necessary to cure some cases of intermittent neuralgia, especially when the periodicity arises from malarious influences. It is strange, also, that there should be so much prejudice in our school against the use of quinine in these cases, when, if there is any truth in the homœopathic law, or any force in the experiments instituted by Hahnemann, and which were to so great a degree instrumental in establishing his faith in the homœopathic dogma, it is one of the best, if not *the* best remedy in all such cases.

Belladonna.—Intermittent neuralgia affecting the right side of the face, worse in the afternoon and evening, and aggravated by motion, light and noise. The pains are of a cutting or throbbing character, and frequently extend into the eye and temple, or into the ear.

Illus. 116.—The patient has been affected about three months every year, for the past eleven years, with daily intermitting neuralgia of the right side of the face, eye and temporal region, the pains commencing at 12 M. and continuing until 6 P.M., or else coming on at 6 P.M. and continuing until 12 P.M., the rest of the twenty-four hours being entirely free from pain; the sight of the right eye was obscured, as though looking through a fog. Two doses of *Belladonna*³ effected a complete cure.—*Dr. Noble.*

Bismuthum.—Bismuth is specially indicated in facial neu-

ralgia when the pains are of a burning character, occur in the morning, are aggravated by warmth, and are situated in the forehead and eyes, especially in the right eye.

Illus. 117.—A lady, æt. 25, had facial neuralgia of some weeks duration. Was worse in the morning. The pain was burning, excruciating, and greatly aggravated by warmth. The only relief that could be obtained was by holding cold water in the mouth and moving about. Several remedies were used without any good results, and the patient was growing worse. *Bismuthum*²⁰⁰ was then given with almost instantaneous relief, and with permanent benefit, as there was no further pain for upwards of three years after it had been administered.—*Dr. G. M. Ockford.*

Bryonia.—General facial neuralgia or tic douloureux, the pains of a sharp, darting, stitching character, and extending to the teeth; aggravated by stooping, noise, light, and moving the jaw.

Illus. 118.—Mrs. P. had suffered for six years with tic douloureux, and had “suffered many things of many physicians.” All her teeth on the left side, upper jaw, were sacrificed, and still no cure was effected. At this time the pain was most acute, and she found herself obliged to remain in her own room, refusing to speak to her children or take food for days together. The motion necessary to speak or eat, aggravated the pain to such a degree that tears flowed freely. One powder of *Bryonia alba* gave so much relief that she joined her family and took a full meal within two hours. Her symptoms continued to improve, and she found herself quite free from pain. After taking a few more doses of *Bryonia* she was discharged.—*Dr. E. C. Beckwith.*

Ignatia.—This remedy is indicated in supra-orbital neuralgia of the left side, especially when it is of a hysterical character, or excited by grief or fright; also in well-marked intermittent cases, occurring in women of a mild and amiable disposition.

Illus. 119.—For several years past, during the spring months, Mrs. P——, a large, amiable, and benevolent woman, has suffered with supra-orbital neuralgia, of an intermittent type.

Every day, at 9 A.M., a severe pain seized her just above the left orbit, of a tearing and pressive character, which extended into the nose and eye, and reached its height in about three hours. After 12 M. it would gradually diminish, and at 3 P.M. would be entirely gone. A thin nasal discharge accompanied the decline of the pain and seemed to give relief. After trying several remedies without benefit, I studied up the case, and concluded to give *Ignatia*. Accordingly, I prescribed the thirtieth dilution of this remedy three times a day. After taking the medicine in this way for about a week, the pain suddenly ceased and has never returned.—*Hart*.

Iris vers.—Violent shooting and cutting pains in the temporal region, extending into the eyes and teeth. The remedy is specially indicated if the pain is seated over the left superciliary ridge, or is accompanied by nausea or conjunctival redness.

Illus. 120.—Mrs. T., æt. 42, mother of five children. Has been suffering from neuralgia in the left temporal region, extending down the ramus of the lower jaw into the teeth; pain sharp and cutting; health otherwise normal, and sleep good, except when disturbed by these neuralgic pains. Prescribed *Iris vers*⁶, ten pellets, number thirty, four times per day. Cured.—*Dr. W. S. Mullins*.

Kalmia.—Sharp rending or stinging pains in one or all the branches of the fifth pair of nerves, and extending into the neck, temples, and teeth; ameliorated by cold, aggravated by warmth.

Illus. 121.—Was called to treat a case of facial neuralgia in a lady, the attacks coming on in the evening, gradually increasing in severity, and lasting all night. The pain commenced in the neck, went to the top of the head, then to the temples and right side of the face; the parts were tender to the touch; pain sharp, shooting and twitching, sometimes sudden, in spots; relieved by cold, aggravated by heat; teeth sound but tender. *Kalmia* relieved, after *Bellad.*, *Coloc.*, *Pulsat.*, *Nux vom.*, *Arsen.*, *Spigel.* and *Carbo veg.* had failed.—*Dr. Ball*.

Lachesis.—Neuralgic pains seated in the supra-orbital nerve of either side, of a sharp and lancinating, or dull and heavy character, and associated with great sensitiveness of the sur-

face. It is more especially indicated if there is spinal tenderness or aching also.

Illus. 122.—Mr. A., æt. 40, has a very severe pain, commencing in the inner canthus of the right eye and extending upward and outward in a half circle just above the superciliary ridge. The pain is dull, heavy, and so severe as to disable him for all work; commences at 9 A. M., and goes off in the afternoon; the skin is extremely sensitive to the touch; the pain had located about a week. *Lachesis*³⁰, two doses, were prescribed. The following day the pain was very slight, and has never returned, but the following day there appeared a pain in the small of the back, worse after sleeping, similar to a rheumatic trouble which he had six years ago, and which was relieved at that time with liniments. Gave *Sac. lac.*, and all symptoms soon disappeared.—*Dr. Howard.*

Mezereum.—Left-sided facial neuralgia, extending from over the eye to the eyeball, cheek, teeth, neck and shoulder; lachrymation, conjunctiva injected; parts sensitive to the touch; aggravated by warmth.

Illus. 123.—H. G., a stout, healthy-looking negro man, came to my office, seeking relief from a severe supra-orbital neuralgia, left side, beginning regularly at 9 A. M., increasing in severity until noon, and then subsiding gradually until near 4 P. M., when the pain entirely ceased. He had suffered in this manner daily for about a week, using only cold compresses as a palliative. The pain was intense, and yet it seemed to extend only along the supra-orbital ridge to the temple, the patient being able to cover the whole extent of the pain with the points of two fingers. The patient was in good health excepting the periodical neuralgia. After prescribing *Acon.*, *Arsen.*, *Bellad.*, *Gelsem.* and *Spigel.*, at different times, without success, I made a more careful study of the case. The only symptoms from which to select a remedy were: supra-orbital pain, at times extending into the left eye, causing a flow of tears, beginning at 9 A. M., increasing until 12 M., and decreasing gradually until 4 P. M., leaving the patient perfectly free from pain or soreness; left eye injected; pain of a heavy, aching character. Finding that the symptoms of *Mezereum* cov-

ered the case, excepting the periodicity, I prescribed the first decimal preparation, and permanently cured the case.—*Dr. J. W. Vance.*

Sepia.—Aching, drawing, or tearing pains in the face, nose and temples, worse in the left side and at night, extending to the teeth, vertex and occiput, especially when caused by exposure to cold; the pains frequently extend to the ear, and are aggravated or renewed by either warmth or cold; especially suited to delicate, sensitive females, particularly when the menstrual function is disturbed.

Illus. 124.—A young lady, æt. 21, after getting heated, drove at night in a carriage, and, the windows being open, was chilled. Two days later she got violent pains in the teeth, that became intolerable at night. The pains spread from the teeth through the upper jaw and the temples of both sides, but were worse in the left side, and went to the top and back of the head. Two carious teeth were extracted without relieving the pain, which became worse. Peruvian bark was given in large doses, causing the pains to increase greatly in intensity. Seeking my advice, I gave two doses of *Sepia*³, after which the pain completely disappeared.—*Dr. Heyberger.*

Local Treatment.—Facial neuralgia is often greatly ameliorated, and sometimes cured, by certain kinds of local treatment, even after internal remedies have failed to relieve. This is especially the case with *electricity* and the new operation of *nerve-stretching*. The former, in the form of *galvanism*, is frequently of great benefit during the paroxysms, sometimes relieving the most intense suffering at a single sitting. The sponge of one of the poles of the battery, well-saturated, should be applied over the affected nerves, and that of the other at any convenient distance outside of the painful spot. The current, which should be very light at first, will be most effective in subduing the pain, by being gradually increased until a slight burning sensation is produced. It should not be continued over five or ten minutes at one sitting, nor should the application be made oftener than once or twice a day, except in chronic cases.

Nerve-stretching is now an approved and highly successful

mode of treating obstinate cases, especially when the tissues surrounding the painful nerve are swollen or hypertrophied. The affected nerve having been laid bare, is pulled backward and forward with sufficient force to liberate it from any inflammatory or other form of compression which may be interfering with or exalting its function. The paresis that generally follows the operation soon wears off, and the patient may then find himself permanently cured. The supra-orbital nerve has been repeatedly operated on in this manner, and with the most gratifying success.

Chloral hydrate has been used with considerable benefit as a local remedy, in some instances, where other measures have failed to give relief. One mode of application is, to saturate folds of lint, of the proper size, with a solution composed of about five drachms of the chloral to a pint of water, to which a small quantity of glycerine is sometimes added. These folds, after being brought into close contact with the affected parts, are then covered with three or four layers of lint, or spongio-piline, wrung out of hot water and covered with oil-silk. Another mode of applying the remedy is, to make an intimate mixture of equal parts of chloral-hydrate and camphor, which produces a clear fluid, and then to paint the mixture lightly over the painful part and allow it to dry. Dr. Lenox Browne states, in one of the English journals, that he has employed it in this manner, and induced others to do so, and that in every case it has afforded great, and, in some instances, instantaneous relief. It never blisters, though it may occasion a tingling sensation of the skin. *Aconitia* and *Atropine* may be applied in a similar manner. Dr. Holcombe says that two or three grains of the first centesimal trituration of atropine, dissolved in a cup of water, and rubbed into the painful parts with a soft rag, will soon mitigate the sufferings of the patient.

CHAPTER IV.

INTERCOSTAL NEURALGIA.

Intercostal, or, as it is sometimes termed, *dorso-intercostal neuralgia*, is a hyperæsthetic or painful condition of the sensory fibres of one or more of the twelve pairs of dorsal nerves. It is frequently confounded with pleurodynia, but the latter is not seated in the nerves, but in the muscles; in other words, it is a myalgia of the intercostal muscles.

Symptoms.—It is important, in order to distinguish the disease from pleurodynia or rheumatism, to bear in mind the tender points to be found in most cases of true intercostal neuralgia. These sensitive points are located in three different places, namely, close to the vertebral column, or over the spinous processes of the vertebræ corresponding to the affected nerves; in the middle of the intercostal space, about half way between the spine and sternum; and at a small spot in front or by the side of the sternum. The pain, which is generally confined to the left side, and to only one or two of the intercostal nerves, seldom sets in with much intensity, but, like other forms of neuralgia, becomes more and more severe as the disease progresses. It commonly affects the nerves between the fifth and ninth ribs, and is of a shooting, tearing, or jerking character. As the pain passes off, it always leaves a stinging or burning sensation behind it. The pains are aggravated by every considerable movement of the spine or thorax, owing to the tender spots above mentioned, and from which they appear to radiate. These tender points are so sensitive, that the patient is very apt to draw attention to them, especially if the practitioner attempts to percuss the chest. A

characteristic circumstance is, that while moderate pressure over these points is not well borne, hard pressure is endured without much trouble. This will serve to distinguish the tenderness from that of inflammation, to which, at first sight, it seems to bear considerable resemblance; it may also be distinguished by the absence of fever. The disease is usually very obstinate, and may last for years, and even for life. It is chiefly confined to females, with whom it often assumes the form of

Mastodynia, or neuralgia of the mammary gland. This form of the disease may be distinguished from every other affection of the breasts, by its having no direct, or causative connection with pregnancy, or with nursing or weaning, though it is frequently aggravated by being associated with these conditions. The painful sensations are generally due to mammary congestion, arising from the establishment, periodical recurrence, or derangement of the menstrual function, and hence is most frequently observed in girls at the age of pubescence, or periodically in full-grown girls and women between pubescence and the critical age. In girls, the pains are drawing, stitching, or throbbing; or there may be only a tingling or prickling sensation in the swollen and sensitive breasts. Sometimes the mammae are so sensitive, not only in growing girls but in married women, that the least pressure or friction is unbearable; even the weight or jarring of the distended organs is painful. This hyperæsthesia of the breasts often continues until the reproductive organs undergo a change in consequence of marriage, and sometimes reappears at every menstrual period during life. It may even extend to other parts of the body, particularly to the uterus, pudendum and stomach. Another variety of mastodynia arises from traumatic or constitutional causes. The pains, which come on in paroxysms, are lancinating, rending, boring or drawing, and are always worse at the monthly periods; they are also aggravated by pressure. This variety, if it continues for any considerable length of time, is apt to result in the formation of mammary neuromata, which can often be felt as smooth rounded tubercles, of the size of hazelnuts, beneath the skin.

Etiology, Pathology, etc.—We have already stated that intercostal neuralgia chiefly attacks females, and that it very rarely occurs prior to the age of pubescence, or subsequent to the climacteric period. As a general rule, it is impossible to refer it to any special or definite cause, though it frequently follows an attack of herpes zoster, showing that an intimate relation exists between these two affections. Occasionally, instead of the eruption preceding the neuralgia, the two diseases appear together; and still more rarely, the neuralgia precedes the appearance of the eruption. Mastodynia is common in chlorotic, anæmic, and hysterical conditions of the system, and hence these conditions are generally regarded as predisposing causes; but, as before stated, menstrual disorders, especially menorrhagia, and other wasting discharges, such as metrorrhagia and leucorrhœa, are no doubt the chief exciting causes of the trouble. The disease is sometimes associated with spinal irritation, angina pectoris, and certain constitutional disorders, such as tuberculosis and syphilis.

Illus. 125.—As illustrative of the symptomatology, etiology and pathology of mastodynia, we give the following instructive example from Schulze: "A woman, æt. 26, entered the hospital at Heidelberg on account of torturing pains in both mammae. She states that she was confined about three years ago, labor and puerperium normal; nursed the child for six weeks, during which the milk was abundant, when it suddenly ceased on account of grief. The menses were irregular, sometimes stopping for six months or even a year. Of late, menstruation had been regular, but the last time it was scanty and lasted only a couple of days. Seven months before entering the hospital, she suddenly felt as though milk was being secreted, just as she formerly felt when nursing. On pressing the mammae she was astonished to see exuding from the nipple a milk-white yellowish fluid. During the next few days the sensation of tension increased, and shortly afterwards the breasts became so painful that the patient was unable to lie on the left side. At first there were free intervals, but now she could only speak of remissions and exacerbations. After four weeks more of suffering, the neuralgia began to tell on the patient, she be-

came unable to work, even knitting increased the pain; sometimes, also, she complained of vertigo and headache. Examination revealed moderate anæmia, perhaps some chlorosis; the mammae were pendulous and somewhat flabby, and the mamillæ normal. Palpation revealed nothing abnormal, nowhere painful tubercula; moderately strong pressure was well borne, and on pressing the nipples a few drops of yellowish-white fluid was discharged, which microscopically corresponded to colostrum. Sensitiveness to pressure was observed on the spinous processes of the second to the tenth dorsal vertebræ. In the left fourth intercostal space there was pain on pressure opposite the arch of the rib; pressure on the eighth to tenth dorsal vertebræ caused the pain to radiate toward the right mamma. Examination of the genital organs revealed a moderate fluor albus; the mucous membrane of the os uteri redder than normal; uterus otherwise healthy. The patient remained in the hospital nine months, and was subjected to every form of allopathic treatment, up to intoxication by Atropia, but without obtaining more than a mere temporary improvement. Only electricity gave some relief during the first few weeks of its application, but after a time the faradic as well as the galvanic current ceased to have more than a momentary influence. —*Berlin Med. Klin. Wochenschrift.*

Diagnosis.—There can be no difficulty in correctly diagnosing intercostal neuralgia, provided due attention is paid to the symptoms, and especially to the tender points characteristic of the disease. Nevertheless, mistakes have often been made in the diagnosis, chiefly from a want of proper care in examining the patient. Thus, Prof. Janeway states* that within a single month he had seen three cases of severe organic disease mistaken for intercostal neuralgia. The first had been treated for six months for intercostal and cervico-brachial neuralgia, which on examination was found to be due to an aneurism pressing up behind the innominate artery. Another had Potts' disease of the spine, but had been treated for months for intercostal neuralgia and* disordered liver, the pain being in the lower intercostal nerves, and particularly on the right

* *Hosp. Gaz.*, Oct., 1879, p. 486.

side. An examination of the back revealed a marked angular projection in the lower dorsal spine. Such gross mistakes are altogether inexcusable, and for the honor of our school I am glad to know that *we* are not responsible for them, if we were, we should never hear the last of it! They serve to teach us, however, the importance of making a thorough examination in all cases, and when this is done, there will be no danger of ever mistaking the nature of the complaint.

Prognosis.—Intercostal neuralgia is often a very obstinate affection, especially when it takes the form of mastodynia. It is sometimes combined with spinal irritation, which appears in such cases to be the primary cause of the trouble; at least the neuralgia will not yield until the spinal disease is removed. In fact, as a general rule, the duration of the disease is determined by the continuance of the essential causes. The prognosis, therefore, will generally depend upon the curability of the disordered or dyscrasic state of the system that constitutes the efficient cause of the affection.

Treatment.—*Electricity* is often one of the most effective means of relieving the neuralgic pains, and sometimes it is the only one that will do any good. The *galvanic* current should first be employed, and if this fails, or ceases to produce any beneficial effect, then *faradization* should be tried. For the best means of applying electricity, and other local remedies, see the preceding chapter.

The medicines which have so far yielded the best results in this form of neuralgia, are: *Arsenicum*, *Cimicifuga*, *Pulsatilla*, *Phytolacca*, *Rhus tox.* and *Mezereum*. For hyperæsthesia of the mammæ, the chief remedies are: *Belladonna*, *Baryta*, *Bismuth*, *Calcarea*, *Cimicifuga*, *Caulophyllum*, *Conium*, *Nux vom.*, *Phytolacca*, *Pulsatilla*, *Sepia*, *Sabina* and *Spigelia*; the two latter, more especially, when the painful sensations affect the nipples.

When the pains result from constitutional causes, the treatment, in order to be successful, must be specially directed to such conditions. Thus, anæmia will probably require *Arsenicum* or *China* for its removal; chlorosis will demand the persistent administration of *Ferrum*; tuberculous patients will need *Phosphorus* or *Iodine*; and the syphilitic form will be likely to yield only to *Mercurius* or *Kali iodatum*.

We have already expressed the opinion, that this form of neuralgia is generally of a reflex nature, and due to uterine irritation. We have come to this conclusion, partly from the other morbid phenomena usually associated with it, and partly from the marked benefit generally derived from the administration of uterine remedies, especially *Cimicifuga*. We know of no internal remedy that will compare with the latter in point of efficiency in most cases. Moreover, we find that these views are sustained by the observations of others. Dr. Hale says: "For those obstinate pains in the left side, which females so often complain of, this remedy is as nearly a specific as anything can be. Dr. Simpson, in a paper on the diagnosis of uterine diseases, mentions these 'sympathetic pains in different and distant parts of the body,' which are really reflex pains or neuralgias, caused by uterine irritation. Among these reflex pains are: 'pain in one or both mammae,' 'pain under the left mammae and upon the edges of the rib on that side,' pain in some of the vertebrae of the back, etc. For all these reflex pains, when dependent on uterine disorder, there is no more useful remedy than *Cimicifuga*. But it is peculiarly useful for the 'pain under the left mamma.' It occurs more commonly in unmarried females, and is probably as frequent in cases of uterine affections, as pain in the shoulder is in hepatic affections. The pain is sometimes diffused along the side, but more usually it is limited to a small spot not larger than a half dollar. Dr. Simpson used the *Cimicifuga* in some severe and obstinate cases, and the pain rapidly subsided under its use."

Phytolacca is another remedy of very great value in these cases. Excepting *Cimicifuga*, we know of no medicine so reliable as this in subduing the neuralgic pains, especially those affecting the mammary gland. It has the advantage, too, of being a superior constitutional remedy in many of these cases, especially adapted to rheumatic, scorbutic and syphilitic subjects. It is generally acknowledged to be a remedy of great power in subduing the pains of mastitis, and we claim for it equal efficacy in many cases of mastodynia. When the pain is accompanied with swelling and engorgement of the mammary gland, this remedy will be found to be a specific.

Illus. 126.—Mrs. K., æt. 26, of a very nervous organization, enjoyed a fair degree of health up to the age of twenty-two, when she became affected with exophthalmic bronchocele, which reduced her to a mere shadow. After about three months treatment of this disease, for which she took Iodine⁶ and Bromine³⁰, I succeeded in curing her, and in the course of a few months she became fleshy and the very picture of health. Three years ago she married, and in due time she gave birth to a healthy boy. She nursed the babe until he was a year old, during which, and for several months after weaning it, her health remained unimpaired. About eight months ago she began to have pains in her left breast, of a sharp, lancinating character, accompanied with swelling, hardness, and great sensitiveness of the upper portion of the gland. Shortly afterwards the right mamma became affected in a similar manner. At the same time the exophthalmic trouble began again to show itself. The mastodynia at last became so severe as to deprive her of all rest. She declined rapidly in flesh and strength, became exceedingly nervous and low-spirited, and entirely lost her appetite. Up to this time no effective treatment had been instituted. As I had treated her successfully in her former trouble, I was again sent for, a distance of some three hundred miles. I found her an object of commiseration to all who saw her. Feeble and attenuated, she lay, or rather tossed upon her bed in a paroxysm of intense agony. So great was her suffering and restlessness, that it was with difficulty that I could make the necessary examination. I found the mammæ swollen, hard, nodulated, and extremely painful to the touch, the nipple especially so. The pains radiated from the latter to all parts of the gland, and also to the spine, which was extremely sensitive to pressure, particularly over the spinous processes of the eighth, ninth and tenth dorsal vertebræ. The pain was worse at night, and was greatly increased by every movement of the spinal column, but the pains were so severe during the latter part of the day and the forepart of the night, that she was unable to remain quiet. I ordered a poultice of fresh *Phytolacca radix*, roasted, to be applied to both mammæ, and a teaspoonful of *Phytolacca*, 1x dil., in water, to

be given every half hour until better. Two hours afterwards she was in a heavy sleep, the first sound sleep she had had for many weeks. I remained with her during the next thirty-six hours, and she had no more severe pains. The treatment was continued, at intervals, during the next two weeks, when nothing but spinal tenderness remaining, I prescribed *Cimicifuga*, 3x dil., three times a day internally, and the fluid extract of the same, in water, as a local application to the sensitive vertebræ. This completed the cure, and she has had no return of the complaint.—*Hart*.

CHAPTER V.

SCIATICA.

Sciatica, also sometimes called *ischias*, or *femero-popliteal neuralgia*, is a hyperæsthesia of the sciatic nerve. It is not only one of the most common, but, owing to the size and situation of the nerve, one of the most distressing forms of neuralgia. The parts affected are those supplied by the great sciatic nerve and its posterior cutaneous branches, namely, the hinder surface of the thigh, leg and foot. Sometimes other superficial nerves are secondarily affected, particularly the saphenous, but this is not common.

Symptoms.—The disease generally commences gradually, with symptoms resembling those of a slight attack of rheumatism; the pain being constant, of a severe aching character, and somewhat remittent. It is situated mostly about the hip, and in the course of the nerve, seldom extending upwards, but often downwards, sometimes as far as the foot. The pain is not confined to the course of the sciatic nerve, but is frequently felt at the inner side of the knee joint, as in *morbus coxæ*. Anstie says of this pain, "The extremely severe pain at the internal aspect of the knee joint, which is such a common symptom in *morbus coxæ*, is evidently a reflex neuralgia of the long saphenous nerve, the ultimate irritation being situated in the branches of the obturator nerves which supply the hip joints. For some reason unexplained, this happens in a considerable number of cases of *sciatica*." These pains are intermittent instead of remittent, and occur in paroxysms, with intervals of more or less aching and burning between them. Sometimes the pains become so violent as to rival in intensity all other

forms of suffering. Last winter I attended a gentleman, previously in good health, who was suddenly seized with such intense pain in the right hip and thigh, as to cause him to faint away. He said it appeared to him like a stroke of lightning tearing its way through the hip joint and down the limb. These terrible pains occurred on an average once or twice a day during the course of his sickness, with others of a less severe character between, so that he must have fainted twenty-five or thirty times during his three weeks illness. Involuntary muscular contractions, of a tonic character, also sometimes occur, and add greatly to the sufferings of the patient. The pains are almost always worse at night, or when the patient is warm in bed; they are also increased by lying upon or extending the affected limb. As a consequence of this, the patient generally keeps the diseased limb somewhat flexed, and avoids moving it as much as possible, so that in the course of time it is apt to become more or less atrophied from non-use. The points most sensitive to pressure are generally situated at the sacro-iliac articulation, the sciatic notch, and just behind the great trochanter. Other tender points are sometimes found along the course of the nerve, particularly at the back of the thigh, over the head of the fibula, and at the external malleolus. The æsthesiometer shows that after the disease has existed some time, the general sensibility of the surface of the affected limb is considerably diminished; and sometimes the temperature, also, is more or less lowered. The hair bulbs near the distribution of the affected nerve, are sometimes stimulated to such a degree as to throw out a dense growth of hair, the number of hairs becoming multiplied, and the older ones hypertrophied. This phenomenon is most frequently observed in traumatic cases. Another peculiar symptom occasionally noticed in traumatic lesions of the sciatic nerve, particularly those caused by gun shot wounds, is a glossy condition of the skin. I met with a number of these cases in the surgical wards of Brown Hospital during the late war. The affected surface is red, shines as though it had been varnished, and is entirely devoid of hair. This condition, which is the opposite of that just mentioned, is probably due to the

diminished circulation and nutrition arising from the injury of the nerves. The dorsum of the foot is especially apt to suffer in this manner, as well as from two other peculiar symptoms sometimes observed in these cases, namely, severe burning pain and an eruption of eczema. These symptoms are all clearly traceable to the same cause, diminished nervous influence. In chronic cases, in addition to atrophy, it is no uncommon thing for paralysis to gradually set in. Even when paralysis does not occur, there may be such a shortening of the tendons as to cause more or less permanent flexure of the limb, and thus render it almost useless as an instrument of locomotion. The disease attacks but one limb at a time, a fact of some importance in a diagnostic point of view. Sciatica antica, or neuralgia of the anterior crural nerve, is a much rarer as well as less severe form of the affection.

Causes.—Exposure to cold and excessive physical exertion are the two principal causes of the disease. This will account, in a great degree, for the fact that the disease is much more common among men than women, although as a general rule women are more subject to neuralgic affections than men. It will also account for the fact that sciatica is an affection of adult life. Common as the disease is, it is rarely met with under the age of twenty. This is all the more remarkable, as debility and general weakness strongly predispose to the disease. The explanation appears to be, that men are more subject than women and children to hard labor and out-door exposure. That poor health and general debility predispose to its occurrence, cannot be doubted. Hence, whatever favors this condition, whether it be insufficient or improper nourishment, impure air, sedentary habits, wasting discharges, or excessive sexual indulgence, will also act as a predisposing cause. The efficient causes are equally numerous. Sometimes, in surgical or traumatic cases, one or more fibres of the injured nerve become entangled in the cicatrix, or the latter may be so situated as to press injuriously upon the nerve, and so give rise to the affection. In the same way, neuromata, subcutaneous tubercles, enlarged lymphatic glands, aneurisms, hernia, and other morbid enlargements, by pressing upon the affected

nerve, or interfering with its nutrition, may be the proximate cause of the trouble. Even intra-pelvic enlargements, such as result from pregnancy, constipation, ovarian engorgement, etc., have been known to produce it, by pressing upon the sacral plexus of nerves, as in the following case:

Illus. 127.—Mrs. Ezra Jolint, a French woman, æt. 23, mother of one child, had been under treatment for about two years for sciatica of the right lower extremity, with only partial and temporary relief. After carefully noting the symptoms, I diagnosed congestion of right ovary, together with chronic disease of the uterus. The metroscope, together with the necessary manipulations, having confirmed my previous views, I at once set about treating her for the above lesions, and as these disappeared, the sciatica and attendant lameness also disappeared, and have not yet returned, now five months.—*Dr. A. I. Sawyer.*

Pathology.—When we say that nothing is definitely known concerning the special pathology of this disease, we but express the general conviction of the profession thereupon. Theories more or less plausible have, it is true, been promulgated from time to time, but none of them have been sustained by sufficient evidence to entitle them to be regarded as anything more than ingenious explanations of the morbid phenomena. Thus, Dr. Thompson accounts for the atrophy and pain of many cases of sciatica, by referring them to vaso-motor irritation mainly, and not to mere affection of the nerve trunk. Hence he says he has “always commenced the treatment of these cases, where atrophy and rigidity are present, with measures directed towards remedying this supposed lesion. To do this, we begin with attempts to blunt or paralyze the irritant-sensor impression, which is the starting-point of the whole trouble; for, so long as it persists, so long will it be reflected through the ganglia it reaches, upon the motor filaments which proceed from them to regulate the calibre of arteries. It was, therefore, for this purpose, and not for curing his sciatica, that we ordered the subcutaneous injection of Morphia and Atropia together for this patient. After every such injection, the limb would grow one or two degrees warmer, thus indicating a return, for the time being, of blood, from corresponding relaxations of the

arteries. But, by themselves, these neurotics would have proved totally inadequate, for like all other real neurotics, their effects are transient, and hence, in a few hours, you will note the arteries contracting again, and the coldness and rigidity returning as before." Now, we admit that this reasoning is quite plausible, and the treatment based upon it to a certain extent successful; but we account for the phenomena in a totally different way, and upon a principle the application of which in practice is productive of much more permanent and satisfactory results. We believe that the temperature, and consequently the tone, of the affected parts, is lowered, not by central, but by peripheral influences, the chief of which, as already stated, are *cold and exposure*. Consequently, that treatment will, as a general rule, prove most successful, which tends most directly and permanently to raise the temperature of the affected limb—that is to say, by increasing the nutrition. Hence the best results have hitherto been reached in these cases by a *heating diet*, especially of one consisting largely of *fat*; by such local treatment as is calculated to accelerate the circulation, such as *galvanism, acupuncture, electro-puncture*, etc.; and by such internal remedies as most permanently stimulate the superficial capillaries, such as *Arsenicum, Colocynth* and *Sulphur*. We shall refer to this matter again under the head of treatment.

Diagnosis.—This disease is most liable to be mistaken for rheumatism and inflammation seated in and about the hip joint. To avoid this, the practitioner should make a thorough physical examination of the patient, noting the presence or absence of the tender points of Valleix, already mentioned, the presence or absence of fever and deformity, the absence or presence of pain when the head of the femur is pressed against the acetabulum, the rounded or flattened appearance of the hip, the elongation or shortening of the limb, the position of the foot, the mode of carrying the leg, the paroxysmal character of the pain, the general condition of the health, and all the circumstances that go to establish the presence or absence of inflammation, either acute or chronic, in the hip joint and surrounding parts. It is well, also, to bear in mind the fact before stated, that sciatica never attacks both limbs at once.

Prognosis—The prognosis in acute cases is generally favorable. The same is also true of chronic cases where the cause can be removed. On the contrary, there are some cases which will tax both the skill and patience of the practitioner to effect any lasting improvement. This is especially the case where atrophy and contraction have taken place to any considerable degree. Yet even cases of this kind have sometimes yielded to homœopathic treatment, at least to such an extent as to render the patient comparatively comfortable, and the affected limb more or less useful.

Treatment.—Under the head of pathology we have indicated the principle the observance of which, in treatment, we deem of paramount importance in these cases. Whatever the practitioner may think of the theory itself, (and it is of no consequence except so far as it may influence his treatment,) I can assure him from long experience, that its adoption in practice will be found to yield the most gratifying results. The first thing to do, of course, after carefully diagnosing the case, is, if possible, to remove the cause. The next is to raise the temperature of the affected limb, by such means as will bring the surface to a normal standard and keep it there. This is not to be accomplished by such stimulants as whisky, brandy, etc., nor by superfluous wrappings, as such treatment will be likely to overstimulate the circulation, and thus increase the sufferings of the patient. The practitioner should bear in mind that the general circulation is not usually at fault; the trouble is chiefly in the cutaneous and peripheral capillaries of the affected limb, *and nowhere else*. Hence *fat food*, which tends to increase, not only the animal heat, but the nutrition of the subcutaneous tissues; the regular and methodical application of the *galvanic current*, which has a similar effect; and the internal administration of such remedies as have a stimulating effect upon the superficial capillaries, will in most cases prove permanently beneficial. It is a singular fact, and one that has attracted the attention of Anstie, Radcliffe and others, that this class of patients generally avoid all kinds of fat food—a fact which in my opinion has much to do, in many cases, with the origin and obstinacy of the disease. It was only last win-

ter that I treated successfully one of the severest cases I ever witnessed—the one already referred to, in which the patient often fainted from the severity of the pain—chiefly by insisting on the regular use of a diet consisting of fat meat, milk, butter, cream, eggs, and other food of like character. If, owing to the condition of the stomach, or other cause, the patient is unable or unwilling to conform to such a dietary, then it will be advisable to place him upon cod-liver oil, or some other oleaginous preparation, by which the object sought to be attained may be accomplished.

From what has been said, it will naturally be inferred that *artificial warmth* must be very beneficial in these cases. Applied heat is indeed a valuable adjuvant in the treatment, provided it be rightly managed. But in order to prove soothing to the highly irritated nerves, it is necessary that it should not be so great as to raise the general circulation above par, nor even that of the affected limb. The simple fact already mentioned, that patients often dread going to bed because the warmth of the bed is apt to aggravate their sufferings, should admonish us not in any way to over-stimulate the circulation. Bearing this in mind, then, we may state emphatically, that there is often no more soothing and quieting agent to be found in these cases than simple warm water, the contact of which, at about the temperature of the blood, tends not only to restore the circulation of the limb to a healthy condition, but to allay nervous irritation, and relax the muscular contraction resulting from it. For this purpose, flannel cloths, wrung out of warm water, and applied with warm dry ones over them, will often prove of great service; but a much better and handier mode of applying moist heat in these cases, is by means of Chapman's rubber bags, which can be readily applied to the lumbar region and hip, or laid alongside of the affected limb, as circumstances may from time to time require.

By far the most efficient application, however, in these cases, is *electricity*, especially in the form of *galvanism*. *Faradization*, though it may prove beneficial in some instances, is not as a rule the best mode of applying the remedy. Indeed, it may well be doubted whether it has not done more harm than good

in this class of cases. The reason is, because the interrupted current is a stimulant of sensation as well as of motion. This renders it well adapted to paralysis and anæsthesia, but not to hyperæsthesia. On the other hand, galvanism promotes organic nutrition, without stimulating the nerves of sensation, and hence is not only calculated to relieve the pain, but to effect a permanent cure. By applying the anode over the sacral plexus of nerves, or behind the great trochanter, and the cathode over the posterior part of the thigh, or in the popliteal space, increasing the current very gradually until it becomes perceptible to the patient, but without causing any pain, and repeating the applications more or less frequently according to the severity of the case, the best results will be obtained. As a rule, the applications should not be continued longer than about ten minutes at a time.

galv. *Acupuncture* and *electro-puncture* have also proven curative in some cases, and are worthy of trial when other measures fail in giving permanent relief. Dr. Hammond says of the latter: "I have several times succeeded in breaking up a paroxysm of intense sciatica, and effectually curing the patient, by a single application, but usually several are required. I have never witnessed the least untoward result from the use of galvanism in this way." He introduces the needles in the following manner: "The needles should be insulated except at their points, and then, being attached to handles which can be brought into communication with the battery, are rapidly passed with a rotary motion down to the nerve. I generally select a point at the upper part of the posterior aspect of the thigh for one, and a point two or three inches below for the other."

Nerve-stretching is another approved method of treating these cases, as in the following case:

Illus. 128.—A patient had suffered for many years with severe sciatica, for the treatment of which huge doses of morphia had been used, until there was no relief when not under the influence of narcotics. The sciatic nerve having been laid bare, it was pulled backward and forward, forcibly, with from eight to ten pounds pressure. The wound healed well, the pain was lost, and some paresis followed; the paresis wore off, and some

pain was felt in the lower part of the leg, but there was no return of the sciatica, and the patient was able to resume work.

—*Dr. Pye.*

Aconite.—This remedy is indicated in recent cases, especially if there is much febrile irritation, great restlessness, and severe shooting pains, darting from the hip to the ankle.

Illus. 129.—A. C., æt. 45, nervo-sanguine temperament, and rheumatic constitution, became "chilled through" by standing at the polls at the November election, 1876. Was called to see him November 21st, and found that on attempting to rise in the morning, he experienced such severe pain in his back and hip as to bring on an attack of syncope. He complained of intense pain and soreness, extending from the left natis to the knee, with occasional but very severe pains darting from the left sacral plexus of nerves to the ankle joint. There was some fever, but not much swelling or redness; tongue coated with a thin white fur. *Aconite*^s, ten or fifteen drops in half a glass of water, a teaspoonful every hour, and the diluted tincture as a liniment, *hot*, whenever the pains became excessive, effected a complete cure in about three weeks, no other remedy than *Aconite* having been employed in the case.—*Hart.*

Allium cepa.—This remedy, according to Prof. Helmuth, has been found almost a specific for "neuralgia of the stump," or when the pain arises from the nerve having become embedded in the cicatrix.

Illus. 130.—I was once called in consultation to Jersey City, to see a man suffering from neuralgia of the stump, following a thigh amputation made about three months previous. The wound had completely healed and the cicatrix looked healthy, yet he suffered intensely from sciatica. He had taken many remedies which act upon the nervous system, including *Morphia*, without relief. He was a great smoker, and as he stooped one day to light his pipe from a scrap of a French newspaper, he read of a case of neuralgia of the stump which had been cured by eating onions. He immediately procured three large ones and ate them. He continued this treatment for several days and was able to sleep every night. Then his physician, Dr. Shelton, thought of trying *Allium cepa*, and prescribed the

tincture with almost the same effect, which was continued until the cure was completed.—*Dr. Wm. Tod Helmuth.*

Arsenicum.—This remedy comes as near being a specific for sciatica as any remedy can come. It is especially adapted to chronic cases, particularly such as are characterized by periodicity, burning pains, and great restlessness.

Illus. 131.—Mrs. C., wife and mother, æt. 50, full habit, leucophlegmatic temperament, with tendency to rheumatic ailments, suffered from an occasional sciatica for twenty-five years, following an allopathic treatment for intermittent fever. Had been treated by numerous doctors, and had tried all the domestic remedies ever heard of, without relief. Symptoms: A severe burning ache, commencing in sacral region, and following the course of the great sacro-sciatic nerve down the extremity to the foot; relieved by motion; worse at night, often obliging the patient to rise and walk the floor for relief; seizures lasting two or three weeks at a time. *Arsenicum*³⁰, a dose every night for a month, cured. No return in two years.—*Dr. Morrow.*

Bryonia.—This remedy is indicated in acute attacks, especially in rheumatic constitutions, or when caused by cold, with sharp, stitching or shooting pains, and aggravated at night or by the least motion.

Illus. 132.—A woman who had suffered from sciatic pains previous to pregnancy, but who had been relieved of them during the flow that followed a miscarriage, again suffered from them with increased violence after the flow had ceased. The patient was not able to stand or sit for a moment, but had to be carried, whenever she was moved from one room to another. The pains were always worse at night, and were aggravated by the least motion. Prescribed *Bryonia*³⁰, which rapidly and permanently cured her.—*Dr. J. H. Frost.*

Colocythis.—This is one of the best known remedies for sciatica, especially when it is of a rheumatic type, or when the pains are of a shooting, tearing character, and are aggravated by the least motion, or are worse at night and when warm in bed.

Illus. 133.—Mrs. A., "fat, fair, and forty," has suffered for the

last three weeks from excruciating pains in her left knee. She has shooting pains in the knee, sometimes lacerating, running from the hip inwardly down to the knee, aggravated by the least attempt to move the leg; walking or standing on it is impossible; the nights are sleepless, especially in bed, where the feathers over and under her (an abominable German fashion) drive her nearly mad, and she passes therefore most of the time on a sofa. Dr. F., of the old school, has treated her from the very beginning, with internal and external medication, but without giving her any relief; even the much vaunted *Morphia* failed. Knee not much tumefied, pale, and without more than normal heat. Tongue white, no appetite nor thirst, lower limbs feel heavy, not much pain as long as she keeps quiet, but the least motion produces it, and it becomes worse at every renewed attempt to walk; shooting in the knee with every attempt to walk; sleeplessness; chilliness, etc. *Colocynthis*²⁰⁰, a few pellets in half a tumbler of water, dessertspoonful every two hours. That night she slept like a trooper. Next day placebo in water, patient able to walk about the room; another good night, more placebo; my attendance ceased, and she remains well to date.—*Dr. S. Lilienthal.*

Guaiacum.—Rheumatic and hereditary cases; chronic cases attended with tonic contraction of the muscles and great exhaustion.

Illus. 134.—I have cured several severe cases of sciatica during the last two years with drop doses of *Guaiacum officinale*^{1x}. One case, occurring in a middle aged lady, was most severe; continued unmitigated for some three months. It seemed to be hereditary, as two older brothers had suffered from it very much. This case yielded in a few days to the *Guaiacum*.—*Dr. E. H. Drake.*

Ignatia.—This remedy is more particularly indicated in cases occurring in nervous females, especially when preceded or accompanied by chilliness or shivering.

Illus. 135.—A woman attacked with sciatica suffered with pains of an acute, tearing, digging, boring character; these pains last from an hour to an hour and a half, and then slowly disappear. The attacks, which are preceded by intense cold-

ness and shivering, occur both day and night, but are worse at night, so that she is obliged to get up and walk the room. *Ignatia*^{1x} was given in two drop doses every three hours, and in two days the pain was all gone.—*Dr. Nankivill.*

Polygonum punctatum.—Pains of an electric-like character, occurring in flashes, reminding one of the *aurora borealis*; sensation in the thigh and leg as of galvanic shocks.

Illus. 136.—N. C., æt. 60, had been treated for several days for sciatica, when he remarked the pains put him in mind of the *aurora borealis*. That evening, in looking over Hale's work, I saw this peculiar symptom under *Polygonum*; I at once sent a few powders, and afterwards received a note reporting immediate and permanent cure.—*Dr. Alexander R. Shaw.*

Rhus tox.—This is one of our most reliable remedies in cases complicated with rheumatism, or when aggravated by damp, heavy weather, or by standing, walking, or any motion of the affected limb.

Illus. 137.—Mr. R., æt. about 55, very obese, but generally healthy. Had sciatica, with tenderness about the knee-joint; pain constant when awake, or when walking or moving the limb; disability so great that he could rise from bed or chair only with great care and effort. Business, that of cutting in a clothing house, and required to stand on the feet the whole day. Difficulty had existed about three years. *Rhus tox.*^{2c}. Pain removed within two weeks. The improvement has continued for two months.—*Dr. E. H. Peck.*

Sulphur.—This remedy should be thought of in all very obstinate cases, especially where the capillary circulation is very weak, and the general tone of the system much lowered. It is also specially adapted to cases arising from the sudden suppression of urticaria, or any other form of cutaneous eruption, and also when complicated with hemorrhoids, constipation, etc.

Illus. 138.—One of the most obstinate cases of sciatica that I ever knew, and which resisted every known remedy and mode of treatment, was at last cured with *Sulphur*²⁰⁰.—*Dr. O. H. Mann.*

CHAPTER VI.

ANGINA PECTORIS.

Angina pectoris, or *breast-pang*, also called *stenocardia* and *neuralgia of the heart*, is a disease characterized by severe paroxysms of pain and sense of constriction, beginning in the region of the sternum, or deep in the chest, and extending to the left shoulder and arm. This definition is sufficiently comprehensive to include the majority of cases, but inasmuch as the name has been applied to a great variety of organic and functional disturbances of the heart, some of which have no essential connection with the disease, it needs to be understood as embracing the following groups of

Symptoms.—Klapka* makes three distinct forms of the affection. The *first* is "stenocardia with venous stasis, and is characterized by palpitation of the heart produced by walking in the open air, and which is increased in proportion as one continues to walk. A remarkable thing is, that these patients can walk for hours together in a close room without experiencing the least inconvenience. When going into the open air and attempting to walk, they feel a pressure at the middle of the sternum; as they advance a few steps, dyspnœa and palpitation of the heart occur; pulsation is felt all through the body, and especially in the carotid and temporal arteries; the face and ears become deep red, and if the unhappy patient forces himself to continue walking, he risks being stricken with apoplexy."

The *second* form of stenocardia is the gastralgic or *crampoide*. "The patients experience not only sternal pressure and dysp-

* *Rev. Hom. Belge.*

nœa when they walk, but also a continued pressure at the pit of the stomach; that pressure which appears to act from without inward, producing a sensation as if there were a ball at the epigastrium; there are empty eructations, great precordial anguish, a paralytic pain in the left arm, the neck, and nape of the neck. These symptoms indicate that the cardiac plexus is attacked, and that from here the malady extends to the gastric plexus, the brachial plexus, and even the cervical plexus. An attack of asthma may occur, which puts the patient in great anguish. In the first form—venous stasis—it is interference with the circulation which occupies the chief role. In this form, on the contrary, there is disturbance of nervous function. In the first apoplexy is to be feared; in the second a fatal paralysis of the heart may occur.”

The *third* is “the *spinal* or *sympopal* form. At the same time with the spinal pressure and dyspnœa, is felt a pressure between the shoulders which corresponds to the sternal pressure; it is as if the thorax were held by an iron band; the patient is pale, weak, and trembling with anguish; he has a small, irregular, intermittent pulse, is often covered with cold sweat, and threatens to fall in a faint. This variety is most often observed in those who have become thin after having been corpulent, in persons whose health is impaired in consequence of grief, reverses, or as the result of excessive venereal indulgence; almost always such patients are emaciated, have little muscular force, are pale and cold. While walking, even in a close apartment, they are seized with dyspnœa and asthma, because motion brings about that thoracic constriction of which we have just spoken; they are better at rest, because motion renews the oppression. With some of these patients, particularly those who have been given to venereal excesses, it is the painful pressure at the back which predominates, and extends towards the sternum; the accessions of dyspnœa and asthma occur later. By physical exploration, one discovers dilatation of the right ventricle, feeble impulse of the heart, no abnormal sounds, but irregular and intermitting beats; often the appetite is impaired, the urine diminished; there is a tendency to dropsical swellings. Here there is cardiac debility rather than fatty

degeneration; paralysis of the heart is not so much to be feared as in the preceding forms, but symptoms occur which depend upon feebleness of the heart and circulation—hyperæmia, venous stasis, dropsy, etc.”

To these we add a *fourth* form, often met with in practice, which may be denominated the *intermittent* or *recurrent*. Like the gastralgic or “crampoide” form, it arises from disturbance of nervous function, but it differs from it in being free from gastric derangement, and in the intermittancy of the cardiac disturbances. The following case will best illustrate this form of the disorder.

Illus. 139.—Mr. C., æt. 30, bilious temperament, came to my office complaining of severe pain; described as being “sharp,” in the region of the heart, and with occasionally violent palpitation. The action of the heart was spasmodic; that is, there were regular pulsations that were normal; these were followed, at irregular intervals, by a tumultuous action, attended with a sound and an impulse against the walls of the chest, as if the heart was turning in the pericardium. The pulse varied from eighty to eighty-five. The patient had not been able to lie down to sleep night or day for six months, in consequence of asthma. In examinations of the chest, I could not discover any disease, either organic or functional, of the heart, and he tells me that he never had any pain in that region before.—*Dr. C. D. Clawson.*

Here we see the cardiac plexus is temporarily disturbed, but there is no extension of the disease to the brachial or gastric plexuses, simply because the disturbing cause, whatever it may be, is not constant or powerful enough to produce it. These cases are frequently met with in females, and are always aggravated by emotional excitement; yet they are by no means of a hysterical nature, as they do not occur in the hysterical constitution, but in subjects whose nervous system is otherwise normal. Can it be that the disturbance is due to a temporary withdrawal of the restraining influence of the medulla oblongata through the pneumogastric nerve, or is it due to excitation of the sympathetic fibres which pass from the medulla oblongata down the spinal cord, and reach the heart

through the lower cervical and first dorsal ganglia of the sympathetic? This form is to be carefully distinguished from those due to organic disease of the heart, in which the pulse-beat may at one moment be normal, and at others faster or slower than usual. In this the pain remains confined to the precordial region, and the disturbance of the heart is purely functional. In this form the paroxysm sets in suddenly, and disappears also suddenly, but its duration is very variable, sometimes lasting only a few minutes or seconds, at others continuing, in an intermittent manner, for an hour or more. In the latter case, there is apt to be considerable dyspnœa associated with it, and not unfrequently it supervenes upon an attack of asthma. In the other forms of the disease, the paroxysms may or may not set in suddenly, though the latter is generally the case. In these forms, the pain is not confined to the region of the heart, but radiates to the sides of the chest, and the arms, especially the left arm, sometimes to the nape of the neck, and occasionally to the right arm, and even to the lower extremities. The paroxysms, as a rule, not only begin and end suddenly, but they generally commence at once in all their intensity, and terminate in the same abrupt manner. The cessation of the paroxysm, however, does not always restore the patient to perfect health. On the contrary, as in other nervous affections, especially such as are complicated with other disorders, there is almost always more or less debility and sleeplessness remaining for a time, and not unfrequently a more protracted period of cardiac weakness and oppression. In most cases, however, the intervals are quite free from all morbid symptoms, and the patient's health is such as to completely allay the apprehensions excited by each renewal of the paroxysms.

Causes.—The disease occurs much more frequently among males than females, and is mostly confined to persons above forty years of age. The subjects of the disease are generally such as are, or have been, corpulent, or inclined to corpulency, and belong to the upper classes in society. Whatever weakens, or greatly depresses the nervous system, predisposes to the disease. Hence, the excessive use of tobacco, venereal ex-

cesses, spermatorrhœa, etc., are found to aggravate, and, in some instances, to cause the disease. One of the worst cases I ever had to treat was in a German who was eternally smoking. I told him he would suddenly die if he did not quit the practice, and when he ceased to smoke he had no more paroxysms. It is so frequently associated with organic diseases of the heart, especially with atheroma or ossification of the coronary arteries, that these have come to be generally regarded as the essential causes of the disease; but, as we have shown, the disease is sometimes met with independent of such changes, and therefore cannot be regarded as necessarily originating in such disorganizations. It cannot be denied, however, that cardiac embarrassment, whether arising from nervous debility, valvular obstruction, fatty degeneration, vascular stenosis, or pulmonary congestion, is the chief exciting cause of the malady, as it is in most cases the remote, if not the proximate, cause of death.

Pathology.—Notwithstanding the fact that organic lesions of the heart are almost always associated with angina pectoris, the symptoms are such as to require the disease to be placed among the neuroses, and such is now the usual classification. Flint, Anstie, Laennec, Eulenberg, Trousseau and others, substantially agree in regarding the disease as essentially a neuralgia, while Romberg, Friedrich, Klapka and others, believe it to be a hyperæsthesia of the cardiac plexus. We believe that the spinal system of nerves is primarily, and the sympathetic system secondarily, involved in these cases; and that the neuralgia or spasm is a reflex symptom, generally of peripheral, but sometimes of central origin. The sources of peripheral irritation are found in suppressed neuralgias, in the various organic lesions of the heart, and in bronchial, pulmonary, and abdominal congestions; the central are chiefly, if not wholly, confined to the various forms of spinal irritation. The following case of suppressed neuralgia will illustrate this reflex action.

Illus. 140.—A little girl, æt. 3, was taken with toothache, which was borne a day or two; the mother, after trying several remedies in vain, took the child to a dentist and had

the tooth extracted. That night, or the next day, the patient was attacked with a severe neuralgic pain in the heart. I was then called to her, and although the acute pain was relieved in a reasonable time, a dull pain and serious disturbance of the action of the heart followed, until, in a short time, the aortic valves became thickened, so that the bellows murmur was very marked, the heart's action violent, and ended in a most serious enlargement of that organ, which has not been fully relieved to this day, now some ten or eleven years, though she has been under treatment for it most of that time. And to show the full bearing of the case and its lesson, it should be stated, that this child had never previously had the slightest pain or disturbance in the heart, never had the least semblance of rheumatism to account for such a result, for nothing of the kind existed in either branch of the family, back to and including all four of the grandparents. The pain or irritation was simply reflected to the nerves of the heart, and resulted in its enlargement, on the well-known principle that any serious disturbance causes thickening of the aortic valves, and continued violent action of the heart must inevitably enlarge it.—*Dr. R. R. Gregg.*

Prognosis.—Patients sometimes have but a single attack, but as a general rule, one paroxysm follows another at shorter and shorter intervals, until finally they become very frequent and severe; and as the danger is generally in proportion to the severity of the attack, the patient is liable, sooner or later, to die of the complaint. This result, however, is generally confined to cases complicated by organic disease of the heart, the fatal issue arising, probably, from cardiac paralysis, in consequence, as Flint supposes, of distention of the ventricular cavities from an excessive accumulation of blood within them. The functional forms of the malady, on the other hand, are eminently curable, and will generally yield to appropriate treatment as readily as any other form of nervous disease.

Treatment.—Having given Klapka's three-fold division of the disease, we shall first give his treatment as adapted to these principal forms of the affection, and then our usual repertory of illustrative cases.

Against the first form—stenocardia, with venous stasis—Klapka prescribed for several years *Belladonna* and *Glonoine*, because he had in view only the cerebral congestion. He obtained, he says, only partial success. He was able to moderate for a time the venous stasis, but it recurred later, and he was forced to seek another medicine which would bring about a more durable amelioration. He perceived, he says, that venous stasis was dependent upon the palpitation of the heart; that the more violent this became, the more the dyspnœa and thoracic constriction were augmented. When the cardiac movements became moderate, the intensity of the other symptoms was diminished. It was this that led him to try, about four years ago, *Aurum mur.*³, a medicine the success of which, he says, surpassed all his hopes. After a few doses, the palpitation of the heart, the thoracic constriction, the dyspnœa and symptoms of venous stasis, were diminished to that degree that the patient could take long walks in the open air without inconvenience. Even when there were already attacks of asthma and dilatation of the heart present, it has caused, he says, so great amelioration, that he is able to say that *Aurum mur.* has specific action in this malady as certain as *Spigelia* in endocarditis. All the symptoms enumerated in the description of this form of the disease, are found in the pathogenesis of this drug, and this will account for the success attending the use of this medicine. He prescribes *Aurum mur.*^{3x}, two doses a day, and when its use is likely to be prolonged, he administers concurrently *Glonoine*³, in order that the patient may not habituate himself to the action of the gold, its action being exhausted by too long use.

With reference to the second, or *crampoide* form of stenocardia, he says: "*Agaricus muscarius* is as powerful in the gastralgic form as gold is in the first form of the affection. It relieves and prevents even cases the most severe accompanied by attacks of asthma. After a few doses, a greater part of the symptoms grow better, and the patient is free from them for quite a time." He employs the third decimal dilution of this remedy, two doses a day, diminishing the dose as amelioration occurs. It is not well, he says, to employ it for too long a time,

as the organism becomes accustomed to it. It is necessary, from time to time, to give an intercurrent remedy; he employs for this purpose *Kali carb.*⁶, the action of which is analogous to the first. This alternation, he says, is not always necessary, one of these two medicines, according to the case, often sufficing for a cure. There are patients, however, who, instead of *Kali carb.*, ought to make use of *Carbo veg.*, *Lactuca vir.*, or *Lycopodium*, according as tympanites, pressure upon the vertebral column, or difficulty in urinating, are the predominant symptoms. But *Agricus*, he says, remains the principal remedy, and it alone is able to give good results.

We now come to the spinal or syncopal form. Two doses a day of *Sambucus*¹ is, according to Klapka, the remedy for this form of the malady, when it is accompanied by marasmus and some spermatorrhœa. Often, he says, at the end of a few days we notice a diminution of the pressure upon the sternum and between the shoulders, of the dyspnœa, and even of the asthmatic attacks. As an alternate medicine he employs *Phosphorus*³, same dose, when the symptoms of pressure are felt at the side of the sternum; but when these manifest themselves chiefly between the shoulders, he gives the preference to *Petroleum*³. He changes the medicine every eight or twelve days. He says he has sometimes employed with success in these cases *Kali carb.*⁶ as an alternate medicine. When there is marasmus, he considers the employment of *Chinin. sulph.*¹, two or three doses a day, as indispensable. As, however, its action is not profound, only symptomatic, he finds it necessary to employ other medicines at the same time, especially if asthmatic attacks predominate, such as *Phosphorus*, *Cuprum*, *Ipecac.*, *Verat.*, etc. Against the dropsy, cyanosis, and symptoms of venous hyperæmia, he makes use of *Arsenicum*³, or *Lachesis*³, or *Chinin. arsenicos*¹. *Nux. vom.*³ and *Carbo veg.*⁶, he says, may be used advantageously for the want of appetite and abdominal distention.

As the regimen he prescribes is judicious, we append it: "There occurs frequently a weakness in consequence of disturbed circulation: the use of restoratives then becomes necessary, in order to stimulate the contractility of the heart—two

or three spoonfuls of malaga, of madeira, or of port, which the patient should always have at hand in case of necessity. The food should be free from fats. As a drink, *l'eau rouge* (1 part wine, 3 parts water). Should there be disgust for solid food, soups with eggs and farinaceous articles in small quantities may be given according to desire, but always *l'eau rouge*. Beer, which develops intestinal gases, should be proscribed. Often the patients experience weakness of the limbs and require frictions. I always prescribe in such cases, for external use, the same remedies that I am using internally, dissolved in alcohol or brandy."

The alcoholic stimulants above recommended, and also brandy and ether, which were formerly much used in this country as restoratives in these cases, are now almost entirely superseded by *Amyl nitrite*, a small vial of which is usually kept on hand by the victims of angina pectoris, for immediate use. Ringer in his "Therapeutics" speaks of this remedy in these cases as follows: "Dr. Brunton first employed Nitrite of Amyl in angina pectoris with signal success, and found it more effective than any other remedy in this painful and dangerous disease. During an attack, his patient suffered from throbbing of the heart and carotids as high as the ears, with severe precordial pain extending to the right arm. The usual characteristic 'sense of impending death' was absent. The pulse was slightly quickened, and the sphygmographic tracing became modified, for as Dr. Brunton states, 'as the pain increased the curve became lower, both the ascent and descent more gradual, and dichrotism disappeared. This form of curve clearly indicates that the arterial tension is much increased, and can, I think, be due only to contraction of the small systemic vessels.' The increased tension first led Dr. Brunton to employ Nitrite of Amyl. In the case in question, he considers that the attack consisted of spasmodic contraction of some, if not all, of the small systemic and pulmonary vessels, which state of arterial tension gave way on inhaling the Nitrite, and the pain then disappeared. On the recurrence of an attack, the patient inhaled the Nitrite of Amyl, and always obtained instantaneous relief.

Dr. Anstie reports a well-marked case of angina greatly relieved by this treatment. He says, 'The first sniff produced, after an interval of a few seconds, the characteristic flushing of the face, and sense of fulness of the head; the heart gave one strong beat, and then he passed from the state of agony to one of perfect repose and peace, and at his usual bed-time slept naturally. This experience has, I am happy to say, been repeated on several occasions, and with this fortunate result; that so confident now is the patient of being able to cut short the paroxysm, that he has discarded all use of ether, and greatly reduced his allowance of stimulants.' Dr. Talfourd Jones also finds it very useful in angina. Indeed, in most cases no other remedy affords so much relief. As might be expected, it is not uniformly successful. Thus, in one case due, as we discovered after death, to aneurism of the heart immediately below the aortic valve, an inhalation always arrested the pain, but it returned after a few seconds or minutes, even if the administration were several times repeated, and was as severe and lasting as when no Amyl was used. In another case, whilst it gave great relief, always arresting the paroxysm, it took ten minutes to effect this, and was in no way superior to a full dose of ether, which the patient preferred, as the Amyl produced so much giddiness and sensation of fulness in the head. In three other cases, however, it proved strikingly successful. In one desperate case, the slightest exertion brought on intense pain; but by the aid of Amyl, the patient could always at once cut short the attack, so that now he can walk several miles, though he is obliged during his journey to employ the Amyl several times. It has appeared to me, that by at once checking the paroxysm, attacks come on less frequently and less severely, and after a time a much smaller quantity suffices to control the pain; so that Amyl really contributes to the prolonged relief of these unhappy patients." We will add, that the most convenient way to administer the remedy, is, to add a few drops to a small vial containing cotton-wool, and have the patient inhale it by holding the mouth of the vial to the nostrils a second or two, whenever required.

In cases of fatty degeneration, obesity, etc., *skim milk* will probably prove beneficial, as in the following instance:

Illus. 141.—A lady who was subject to angina pectoris, and who suffered from great dyspnœa on the slightest exertion, but in whom no valvular disease of the heart could be detected to account for it, nor any other cause whatever, except fatty degeneration, which we had good reason to believe had commenced in the heart and elsewhere in the muscular system, was recommended to make use of an exclusive skim milk diet. Our patient had long indulged in an excessively fatty diet and sedentary habits, and she was in a state of great obesity. The skim milk diet was strictly adhered to for several months, and with a marvellously good effect. The symptoms of angina pectoris soon began to subside, and ultimately disappeared altogether, while the obesity was remarkably diminished, and the patient enabled to enjoy exercise freely and without inconvenience.—*Dr. A. S. Dunkin.*

Electricity.—The beneficial effect of *galvanism* in some of these cases, is well shown in the following case:

Illus. 142.—Mr. C., æt. about 45, farmer, large, robust, powerfully built man, sanguine temperament, always an active, energetic worker, and never was sick a day in his life until about two years ago. At that time he was attacked with a severe neuralgic pain in his left breast. The pain remained constant, but was aggravated by any exertion, sometimes coming on in the most excruciating paroxysms. The location of the pain varied from the left supra-clavicular to the epigastria and left hypochondriac regions, sometimes running down the left arm. Nothing abnormal in the sounds and action of the heart, except during the paroxysms of pain, at which times it was somewhat irregular. The frequency of the paroxysms gradually increased from one in two or three weeks, to one every two or three days, and sometimes oftener. Duration about two hours. The case, which had previously been treated allopathically without benefit, came under my treatment four months ago. I prescribed *Aconite*³⁰, three times a day, and an application of *electricity* twice a week. I used the *galvanic current*, placing the positive pole at the cervical region,

and with the negative pole treated the chest and epigastric region. Duration of treatment twenty minutes. Intensity of current sufficient to cause a considerable burning sensation and rubefaction of the skin. Improvement was rapid from the first. The pain, which had been constant for nearly two years, was instantly relieved by the electrical treatment. The paroxysms became less frequent and much less severe. For the last month he has not felt the slightest touch of it, and has been engaged in his regular farming pursuits.—*Dr. F. S. Adams.*

Aconite.—Aconite is indicated in acute cases, especially in rheumatic patients, or when preceded by rheumatic pains in other parts. Whether the Aconite was of any particular benefit in the above case, is somewhat doubtful; but there can be no question as to its curative action in the following example:

Illus. 143.—A young man complained of stitches at the apex of the heart, with pains extending to the left arm; palpitation on moving. He had previously suffered from rheumatism; pulse intermittent, small and hard. *Aconite*², a few doses, removed the symptoms.—*Dr. E. M. Hale.*

Cimicifuga.—This remedy is also indicated in rheumatic subjects, but appears also to be equally adapted to cases of pure neuralgia, of which the following instance furnishes a striking illustration:

Illus. 144.—A woman, æt. 55, ten years past her climacteric, plethoric, subject to neuralgia, dropsical for years, presented the following symptoms: Has just been relieved of a general dropsical condition by *Apocynum cannabin.* During the presence of the anasarca, she suffered much from cardiac oppression and palpitation, which I supposed to be due to hydro-pericardium. But on the subsidence of the dropsy the heart symptoms became worse instead of better. I then learned that she once had "neuralgia of the heart"—so called by her physician. Several times a day she is now attacked with intense pain in the region of the heart, great anxiety, livid or purple color of the face; cold perspiration on the hands; numbness of the whole body, especially the arms. The heart's action seems suspended by a sudden spasm, during the persistence

of which she cannot make the slightest motion, but sits upright, with a look of intense agony impressed on every feature. She says the heart's action ceases suddenly, then a feeling as of impending suffocation sets in, the head is forcibly drawn backward by the cervical muscles, and she becomes finally unconscious. When she arouses, it is with palpitation of the heart, numbness of the arms, pain down the left arm into the hand, and a sense of complete exhaustion. I did not see her until after she had had several attacks. Arsenicum³ was first prescribed, and was taken for two days—no better. Nux vom.³ for two days—no improvement; then Naja³⁰ for two days. Under the last remedy she grew worse. I then visited her. On physical examination, the heart's action appeared to be normal, pulse regular, but soft and quick. There was no water in the pericardium, and the heart was not hypertrophied. *Cimicifuga*¹² was prescribed, five drops every hour for six hours, then every two hours. She had a severe attack just before taking the remedy, and two slight attacks after the first dose. Ten days afterwards I was informed that there had been no recurrence of the paroxysms.—*Idem*.

Hepar sulph.—This remedy is specially indicated in cases which have resulted from the sudden suppression of cutaneous eruptions, as in the following instance:

Illus. 145.—Mrs. D., æt. 30, nervo-sanguine temperament, housewife, works hard, has been a sufferer from angina pectoris for the last two years. It seems, from the history of the case, to be the result of suppressed erysipelas, of the phlegmonous variety. She was always subject to erysipelas, and two years ago was cured of it by external washes. She has had this pain in her heart ever since; never had it before. She also complains of great heat and dryness of the œsophagus, from the stomach to the mouth. She is likewise troubled by apprehensions, continual fear and anxiety. *Hepar sulph.*³, every morning, cured her in two weeks.—*Dr. S. M. Fowler*.

Kali carb.—This, it will be remembered, is one of Klapka's remedies for the gastralgie form of angina pectoris. Its curative virtues in such cases are well illustrated by the following:

Illus. 146.—Mrs. T., æt. 48, nervo-bilious temperament, house-

wife, has been suffering since the change of life (about three years) from irregularly repeated paroxysms of most excruciating pains in the region of the heart. A sudden start will generally induce palpitation, and it is always aggravated three or four hours after a meal, more particularly if the meal has been a hearty one. Bowels are regular, food digests well and seems to be properly assimilated, and never distresses her at or soon after a meal; but the aggravation of the heart symptoms after four hours, induces her to nearly starve herself. At the time of making my first examination, she was comparatively comfortable, and physical exploration revealed nothing abnormal. Has some muscular rheumatism. There is a dirty yellowish appearance of the skin, and in spots a dry, branny eruption, most on feet and legs. But the great trouble is the pain in the heart. Has taken much medicine. For the rheumatism, eruption and pain, I found *Rhus tox.*, *Arsenicum* and *Aconite* all well indicated, and I determined to try them all, if necessary. Began with *Aconite*^s every two hours for three days. Report, "a little better." Gave *Rhus*^s every two hours. Report the same. Gave *Arsenicum* four times a day. Towards night of the second day I was sent for in great haste; my patient was much worse. I found her suffering fearfully, complaining of "such awful stitches." A stitch would catch her and "take her breath" for a moment, and then she would scream so as to be heard across the street. "Stitches" being the most characteristic symptom, I gave *Kali carb.* From the very first dose my patient began to improve, and has been well since, about six months. She has had a little fluttering, or tendency to palpitation, two or three times since, which were entirely removed by *Lilium tig.*—*Idem.*

CHAPTER VII.

GASTRALGIA.

Gastralgia, a term which, like its congener, *gastrodynia*, simply signifies gastric pain, is a neurosis of the stomach, characterized by severe pain seated in or about that viscus, and uncomplicated by any other morbid sensation in the part; in other words, it is a true neuralgia of the stomach.

Symptoms.—As the symptoms of gastralgia do not occur in any well defined order, or with any regularity, it will be best to view them as separate phenomena, of which one or or more, besides the pain, may or may not be present in any particular case. The chief symptom is the pain, which is always present during the paroxysm, and is of a burning, gnawing, boring, lancinating, tearing, stabbing, cramping, or twisting character; in fact, the pains, while they are generally sharp and severe, may be of every variety of form and degree of intensity, from a simple stitch up to the most intense agony. It is not always easy to determine whether the pains are seated in the stomach itself, or in one or more of the nervous plexuses situated in its immediate vicinity, neither is it of much consequence in a practical point of view; it is sufficient to know that the pains are of a neuralgic character, and are located in the region of the stomach. As in other neuralgic affections, the pains are generally progressive, being at first comparatively mild; but after exciting, or otherwise affecting, the organ, producing eructations and a feeling of depression and sinking at the pit of the stomach, they suddenly increase in severity, often to such a degree as to cause the patient to cry out, and even to writhe in agony. They occur in paroxysms of varia-

ble length, and separated by intervals of greater or less duration, which may or may not be free from gastric uneasiness. Generally, the intervals between the paroxysms are characterized by a sense of weakness at the pit of the stomach; and sometimes there is a dull, ill-defined aching or heaviness remaining after the pains have ceased, due probably to congestion. The pains are usually relieved by hard pressure, whilst slight or moderate pressure generally aggravates them. This will serve to distinguish them from the pains of acute gastritis, which are always aggravated by hard pressure. The pains are sometimes excited, and at others relieved, by eating, in which respect they resemble those caused by dyspepsia. They may remain confined to the neighborhood of the stomach, or they may radiate towards some other part of the body, as the chest, back or abdomen. The paroxysms are not apt to occur with any well marked periodicity, though such is not always the case, some occurring regularly every morning or evening, others soon after meals or at a certain hour of the night; but generally they happen at irregular hours, apparently excited by some transient and uncertain cause, such as mental emotion, fatigue, or indiscretion in eating.

The secondary phenomena are as variable as the pains. Most, if not all of them, are accidental symptoms of some other disorder of the stomach, of which the neuralgia is sometimes the cause and sometimes the effect. Of these, the most common is vomiting, which, unless it occurs soon after eating, is apt to take the form of pyrosis, or waterbrash. It generally occurs at or near the termination of the paroxysm, of which in most cases it is probably the result. Another common effect or accompaniment of the neurosis, is an excessive accumulation of gases in the stomach. These so distend the viscus, that the patient is often compelled to loosen his clothing, or else to relieve himself by belching. Other derangements of the stomach also occur during the intervals, such as nausea, morbid appetite, heartburn, etc.; and although, as a general rule, these are merely secondary phenomena, when present they add not a little to the misery of the patient. In addition to these gastric disturbances, there is apt to be more or less derange-

ment of other organs, such as dyspnœa, palpitation of the heart, colic, etc. These sympathetic nervous disturbances, like those before mentioned, are by no means constant; for it is no uncommon thing for the patient to be as free from them during the interval between the paroxysms, as he ever is in health. Mental depression, almost amounting to despair, is a common accompaniment of the attack, but this generally lasts only until the pain subsides. The disease sometimes succeeds, or alternates with, other forms of neuralgia, especially trigeminal. A female patient of mine, now under treatment, who last week had a carious tooth extracted for the purpose of relieving an attack of facial neuralgia, to which she had long been subject, has since suffered from daily paroxysms of gastralgia; the disease having been apparently translated from the middle branch of the fifth pair to the nerves of the stomach.

Causes.—The disease is much more frequent among females than males, especially such as are anæmic and hysterical; indeed, the affection seldom attacks the strong and robust of either sex. Hence, anxiety, debility, and what is called the nervous constitution, predispose to the disease. The exciting causes are such as tend to weaken the system, such as hemorrhages, leucorrhœa, over-lactation, self-abuse, excessive venery, spermatorrhœa, etc. For this reason, also, dyspepsia is a common cause, from which the disease needs to be carefully distinguished, as it is very apt to be confounded with it, especially if, as sometimes happens, the two diseases coexist. Spinal irritation is sometimes associated with it, though this is not always easy to determine, as the spinal tenderness may be the same in both cases. Tobacco smoking, or the excessive use of tobacco in any form, is one of the most frequent causes of the disease in men. My son, who was formerly in the tobacco trade, was compelled to relinquish the business, on account of the frequency of such attacks. The following is a striking illustration of its pernicious influence:

Illus. 147.—Dr. Teste, after excessive smoking during a railway journey, observed slight shootings in the hypochondria. One part of the abdomen was more swollen than usual; the other side, which was the seat of a dull pain, little increased

by pressure, was, as it were, paralyzed; on touching it, my hands alone experienced the perception of the contact. Some difficulty in speaking, in consequence of an unusual feeling of congestion, not only of the tongue, but also of the buccal and maxillary muscles, which, when I attempted to speak, were affected with a sort of nervous trembling. On sitting down to a plate of soup, I had scarcely swallowed half a dozen spoonfuls when a sudden, acute, indescribable, horrible pain, forced me to scream out. The spoon dropped from my hand, and I fell back upon my chair, pale as death, bathed in cold perspiration, panting, and apparently at the last gasp. My hands clenched over my stomach alone indicated the seat of pain. I was fomented with hot towels; this gave me much relief. Suddenly the paroxysm diminished perceptibly; it was extinguished like a sound in space; it is going—it is gone. I felt my pulse; it was never calmer. I pressed my stomach and belly strongly; they were scarcely tender. A quarter of an hour afterwards I again took a few mouthfuls; this was too much, a hundred times too much. The pain returned; it was terrible. During the night, these paroxysms came on, at first every twenty or thirty minutes. The interval between them increased towards morning. They lasted from one to three minutes, during which the pain would have caused me to scream again, without the most violent effort over myself. They were attended neither by nausea nor by real colic, nor did they cause the bowels to move nor the urine to flow; but they constantly produced a copious perspiration, which generally marked the end of the fit. For many days afterwards, a few puffs of a cigar were sufficient to reproduce the acute and characteristic pain in the epigastrium, and other symptoms.—*Br. Jour. Hom.* XVII, 233.

Not a few cases of the disease are also due to the abuse of coffee and green tea.

Illus. 148.—Some years before the war, I was called to an old woman, living in one of the small towns of Indiana, who was supposed to be in her death agony. Every few moments she would give an unearthly scream, double herself up in bed, press her hands to her stomach, and in a few minutes throw herself

back exhausted and apparently unconscious. Her granddaughter, who was present, said that she had been complaining for two or three days of transient stitching pains in the region of the stomach, which gradually grew worse, until soon after supper that evening they suddenly assumed their present severity. I questioned her closely as to her grandmother's habits, having a strong suspicion that she was addicted to the excessive use of some narcotic, such as chewing opium, smoking, or something of that kind, practices not uncommon in the back-country. I failed, however, to elicit any such information, and was about to abandon the investigation, when the emetic, which I had given under the impression that the stomach contained indigestible matter, began to act, and to my surprise I found that she had thrown up a black, sooty-looking fluid, having the odor of strong tea. I then learned that she was not only in the habit of drinking nothing but tea, but that she made it of unusual strength, that she drank it about six times a day, and that she was also in the practice of chewing the leaves. On calling upon her the next day, I found that her nerves were completely unstrung, and that she trembled as though she had the shaking palsy. She said that she had never had but one such attack before, and that was after getting a fresh supply of tea, of which she partook in great excess, as in the present instance. I told her if she did not abandon its intemperate use she would soon die of its effects, but the warning made but a temporary impression, as she was soon using it again as freely as ever, and the next winter she died in a paroxysm, which, as described to me by her attending physician, I am satisfied was nothing else than neuralgia of the stomach, caused by the excessive use of green tea.—

Hart.

Diagnosis.—This disease is liable to be confounded with inflammation, cancer and perforating ulcer of the stomach, dyspepsia, and the passage of biliary calculi. It may be distinguished from acute gastritis, by the absence of the fever, the persistent vomiting, the sensitiveness to hard pressure, the uninterrupted course, and the great prostration which belong only to the inflammatory affection. Carcinoma may be known

by the emaciation and steady character of the pain which characterize that disease. In perforating ulcer, the painfulness and sensitiveness to pressure are much more circumscribed, being generally limited to the seat of the ulcer. The other diseases, also, are best distinguished by the symptoms peculiar to each.

Treatment.—Warm applications, especially *fomentations*, to the region of the stomach, generally promote the comfort of the patient, and are sometimes sufficient of themselves to relieve the most severe paroxysms. Sinapisms, and other rubefacient applications, are not usually required, though there can be no objection to using them in case the fomentations fail to relieve. *Galvanism*, however, is the most efficient application that can be made, and should be applied agreeably to the directions already given in the preceding chapters (q. v.).

The internal remedies chiefly relied upon in this affection, are *Argentum*, *Arsenicum*, *Carbo veg.*, *Iguatia*, *Nux vom.*, and *Veratrum*. Other remedies sometimes required, are *Belladonna*, *Bismuthum*, *Calcareia*, *Chamomilla*, *China*, *Cocculus*, *Coffea*, *Colocynth*, *Ferrum*, *Lycopodium*, *Opium*, *Platina*, *Plumbum*, *Pulsatilla*, *Sepia*, *Staphysagria*, *Stannum*, and *Sulphur*; in other words, the proper medicine in these, as in all other cases, is the specially indicated remedy, as regards not only the local but the constitutional condition.

Argentum nit.—This remedy is best suited to cases of severe cardialgia attended with heartburn, which is aggravated or excited by eating, and which seems to depend upon an irritable state of the nerves of the stomach proper.

Illus. 149.—A young man, æt. 20, suffered from severe cardialgia, which was worse when moving, better when lying or sitting, but sometimes went off when he took violent exercise and got into perspiration. The pain, which was excited by eating, was as if a stone lay in the stomach. The appetite was good. He was soon cured by *Argentum nit.*³, a dose three times a day.—*Dr. Mosca.*

Arsenicum.—Acute burning pains, accompanied by great restlessness, nervous excitability, coldness of the extremities, palpitation of the heart, and nightly exacerbations.

Illus. 150.—Mrs. S. G., æt. 37, spare habit, extremely nervous and sensitive, after several days attendance upon a sick friend, was suddenly seized about one o'clock at night, with a terrible burning, tearing pain at the pit of the stomach, which would sometimes extend upwards under the sternum and at others would shoot towards the right side. The pains occurred in paroxysms lasting several minutes, and were so severe as to arrest the breathing and cause a cold perspiration to appear on the forehead. The paroxysms passed off about six o'clock, A.M., with eructations of wind, after which she experienced great depression and exhaustion. The next night she had another similar attack, more severe if possible than the first. It was during this paroxysm that I was sent for. I found the tongue clean and the pulse but little excited, but the sufferings of the patient were indescribable. I ordered flannels wrung out of hot water to be applied to the region of the stomach and frequently changed, and prescribed *Arsenicum*⁶, fifteen drops in half a glass of water, of which she was to take a dessertspoonful every hour for six doses, then three times a day until permanently relieved. A few weeks afterwards I met her upon the street, and she informed me that she had had no trouble with her stomach since the night I prescribed for her.—*Dr. A. du Quinn.*

Belladonna.—Pressing, drawing, clutching, or cutting pains in the stomach extending to the back, with nausea, thirst and vomiting, aggravated by drinking water or by motion; ameliorated by eating.

Illus. 151.—Miss A., æt. 21; has had gastralgia for many years. The pains are dull and aching or gnawing, with a sensation of weight in the stomach. The pains extend through to the spine between the shoulders, which ache as if fatigued. The pains are worse when fasting. *Belladonna*³⁰ cured this case in five weeks; but I find that the 200th cures cases with these characteristics, especially where the pains extend to the spine, more promptly and permanently than when a lower potency is used.—*Dr. P. P. Wells.*

Carbo veg.—This remedy is best suited to cases complicated with hysteria or dyspepsia, especially if there is a hyperæmic

and irritable condition of the lining membrane of the stomach present.

Illus. 152.—Mr. L. G., æt. 47, of nervous temperament and active business habits, has complained for the last seven years of dyspepsia, for which he has been physiced, sweated and dieted in every possible manner, but all to no purpose. He feels well enough for three or four months, then an attack comes on lasting several weeks, and then gradually disappears. He was just beginning to suffer when my aid was sought. He feels well enough in the forenoon, and till about three p.m., when waterbrash sets in with thirst for cold water, the stomach becomes bloated and burning pains are there, partially relieved by eructation; but the pains do not cease till, sometime in the evening, he throws up large quantities of watery mucus tinged with bile, when relief follows. He never throws up food; bowels and sleep perfectly regular. Ardent spirits and tobacco disagree with him, and he gave up their use several years ago. Wishing to show off smart, I prescribed (like a fool) *Arsenicum*^s, off hand. But superficial prescribing will not do; the powders failed to have any effect, and I was obliged to study up the case. I found in *Allen*, under *Carbo veg.*, all his symptoms, and twelve powders of the sixtieth potency broke up the attack entirely in less than a week and there has been no return, though formerly every attack lasted from four to six weeks.—*Dr. S. Lilienthal*.

Illus. 153.—Ella B., æt. 16, daughter of parents well advanced in years. Nervo-sanguine temperament; light hair and eyes. In January last, during her indisposition, she suffered an exposure which resulted in suppressio mensium. Was treated allopathically for about three months, when I was called in, to prescribe for the following symptoms: Repeated and often-recurring attacks of the most distressing gastralgia, attended at times with more or less palpitation; sensation of ball rising from stomach to throat; sensation of choking, amounting to actual strangulation, when she would faint clear away. This was followed by almost entire freedom from pain until the next attack. Bowels constipated, menses for two periods normal. Gave *Pulsatilla*, *Nux vom.* and *Asafoetida* at differ-

ent times, with varying effect, under which she gradually improved, except the gastralgia, which was finally and permanently relieved by *Carbo veg.*⁶.—*S. M. F., La Motte, Ia.*

China.—Gastralgia, attended with great chilliness or coldness, constant feeling of weariness and debility, sour eructations, heartburn, bloated abdomen, palpitation of the heart; pains aggravated or excited by mental emotions, cold, eating, or at night.

Illus. 154.—Miss E. R., æt. 20, pale and anæmic, has been a sufferer from occasional attacks of gastralgia for more than four years. The pains, which are of a cramping and cutting character, gradually increase in intensity until they become unbearable. They are attended with a chilly, cold feeling, palpitation of the heart, acid risings in the throat, and sometimes, at the close of the paroxysm, a very sour watery fluid is ejected by vomiting. The attacks generally occur in the latter part of the day or late in the evening, and are most apt to be excited by fatigue or long-continued exertions. Prescribed *China*^{3x}, in trituration, a powder three times a day. Twenty powders were taken, since which she has had no more attacks, a period of over sixteen months.—*Hart.*

Nux vom.—Jahr advises to commence treatment of all cases of gastralgia with *Nux* in males and *Ignatia* in females, unless there are special indications calling for other remedies. It is eminently adapted to the tobacco form of gastric neurosis, as exemplified by the following case:

Illus. 155.—J. E. J., a young man æt. 24, and a confirmed devotee of tobacco, smoked three times in succession, while he lay in bed reading. He became suddenly nauseated, and soon vomited freely. The next morning he had a pain in the stomach, as if he had "swallowed something which was too large." He could hardly eat breakfast, deglutition gave him so much pain. He points to the epigastrium when locating the pain. He says it is as if at a certain spot the bolus was forced through too small an opening, and when the food is once in the stomach, it occasions a "bursting" or distensive pain. Fluids occasion a similiar pain, but not so intense. Warm drinks occasion less suffering than cold, while swallow-

ing, but their presence in the stomach somewhat alleviates the bursting pain. He also observes, on taking a full inspiration, a stitch-like, sharp, but not acute pain, which extends from the epigastrium directly backwards to the spine. This sensation feels as if it would be relieved by an eructation, but it is not. When I saw him, twenty-four hours afterwards, he was afraid to eat or drink, because of the pain. He has never had anything like this before; all that he ever noticed from the use of tobacco was a sense of sinking at the epigastrium. Two powders of *Nux vomica*, 1x trit., a grain each, enabled him to eat a meal without pain on the following day.—*Dr. S. A. Jones.*

Veratrum alb.—This remedy is particularly adapted to those cases in which the celiac plexus and sympathetic are involved, the pain passing directly backwards and upwards in the course of that nerve. The pains increase and subside gradually, and are attended with marked coldness of the extremities.

Illus. 156.—Sarah, æt. 54, for a year has had attacks of pain in the epigastrium; pain comes on gradually, first in the region of the stomach, from which it radiates upwards and to both sides, reaching to the back between the lowest point of the shoulder-blades; it increases in violence till it becomes agonizing, then gradually subsides. As the pain comes on, she shakes with cold, and the hands and feet are cold. *Veratrum*^s, cured in a week.—*Dr. Bayes.*

CHAPTER VIII.

NEURALGIA OF THE FEMALE GENITAL ORGANS.

Neuralgic affections of the female genital organs, whether we consider them in an etiological, pathological, or therapeutic point of view, are so closely allied to each other, that is to say, their sympathetic relations are so intimate, that we deem it advisable to treat of them in the same connection.

1. *Vaginodynia*.—Neuralgia of the vagina may be either primary or secondary. The primary symptoms are generally local, but the vaginal irritation may extend to the other genital organs, causing secondary neuralgia of the uterus and ovaries. In the same manner, neuralgia of the uterus may extend to the vagina, and thus produce secondary vaginodynia. The local symptoms consist chiefly in a condition of painful hyperæsthesia, in which coition is exceedingly painful, or else in a peculiar tingling or itching, which may be either painful or pleasurable—painful when not relieved by scratching or rubbing, and pleasurable or voluptuous when thus treated. This titillation, when slight, may be borne without much inconvenience, or without giving rise to any unpleasant consequences; but when excessive, or when aggravated by external warmth or irritation, it causes an irresistible desire to scratch or rub the affected parts, which, though it may for a time seem to relieve the unbearable itching, and even excite pleasurable sensations, increases the already abnormal warmth, and thus adds fuel to the fire already existing. As a consequence, the parts become preternaturally dry, the sexual appetite is excited, the cheeks appear flushed, the eyes sparkle, and the nervous system is in a state of intense erethism. If not mod-

erated by sexual intercourse, and she endeavors to bear her trouble without resorting to friction, she becomes irritable, feverish and eccentric; but if, on the contrary, the sexual passion is encouraged, she either becomes nymphomaniac, or the erethism and hyperæsthesia are relieved by the escape of an albuminous discharge from the vaginal glandulæ, which leaves the patient weak, pale, exhausted and sullen. In some cases the irritation extends to the uterus and ovaries, hysteria or hysterio-epilepsy is induced, and the morbid excitement is relieved, for the time being, by a convulsive paroxysm.

2. Hysteralgia.—Neuralgia of the uterus consists, for the most part, of various painful sensations incident to the menstrual period. They may occur immediately before, during, or soon after menstruation, constituting the various forms of dysmenorrhœa. Uterine pains occurring between, and remote from, the menstrual periods, are generally due to some other disorder of the sexual organs, and are at most only cases of secondary neuralgia. In pure uterine neuralgia, there is no appearance of congestion, inflammation, or malposition of the organ; neither are the pains due to occlusion or narrowing of the outlets; but they occur in paroxysms, like other forms of neuralgia, are easily excited, occur for the most part in anæmic, hysterical and neuralgic subjects, and frequently alternate with neuralgia in other parts of the system. The pains are of every imaginable form and degree, being at times burning, drawing, pressing, cramping, cutting, stabbing, shooting, tearing and griping. They are mostly felt in the hypogastric region, just above the symphysis pubis; but they may also extend to the vagina and ovaries, and even to the bladder and rectum. When very severe, they may take the form of labor-pains; or they may spread to or from more remote parts, especially the umbilicus, the lumbar region and the thighs. When they reach their height, they not unfrequently cause nausea and vomiting, followed by coldness and depression. In other cases, the pulse becomes somewhat excited, and is attended with headache, a flushed face, thirst, and more or less oppression of the chest. Other secondary symptoms also sometimes occur, such as palpitation of the heart, clavus and globus hys-

tericus, dysphagia, aphonia, dyspnœa, muscular spasm or atony, and all the symptoms usually denominated hysterical.

3. Ovaralgia.—Neuralgia of the ovaries is so frequently met with in the subjects of hysteria, as to be almost identified with that disease. Indeed, as we have already stated under the head of "hystero-epilepsy" (q. v.), Dr. Chairon, by simple compression of these organs, was able to produce at pleasure the most characteristic symptoms of hysteria. Moreover, Charcot has shown that the convulsive attacks of hystero-epilepsy itself can be instantly subdued by compression of the ovaries. "You may," he says, "by removing the compression and again applying it, stop the seizure or allow it to recur as often almost as you like." In these cases of ovarian hyperæsthesia, there is frequently more or less anæsthesia, the affected ovary being on the same side as the anæsthesia. Charcot tells us that when both ovaries are affected, the anæsthesia is general. The reflex character of the pain, in many instances, is well illustrated by the following case:

Illus. 157.—I prescribed for about two years for a case which seemed to be neuralgia of the left ovary. It would be benefited for a brief period only, and then return with renewed intensity. Neither homœopathic specifics for the symptoms, nor general tonics and constitutional remedies, did any permanent good. Several months ago, the lady had all the teeth and old roots extracted from the upper jaw, to have a full plate inserted. From that very day, the pain in the left hypogastrium disappeared, and has never returned. The remoteness of this reflected irritation is remarkable. I can only explain it on the theory, that the spinal centres which control uterine functions, were in a morbid and excitable state, for the patient was not free from uterine disease. That state, however, was not sufficient of itself to produce ovarian neuralgia—but a super-added irritation from above, passing down the spinal column, produced the pain as soon as it struck the morbidly sensitive centres.—*Dr. W. H. Holcombe.*

Dr. Budin, Chef de Clinique d'Accouchements, calls attention* to a vivid pain which is sometimes produced during the

* *Progrès Medical*, No. 9.

latter months of pregnancy, and during labor, by a very moderate amount of pressure made on the abdomen by the ends of the index and medius fingers. The pain is sometimes so sharp that it causes exclamations, or tears to start in the eye. It never occurs spontaneously, and its production is confined to the vicinity of a line drawn from the umbilicus to the anterior superior spine of the ilium, sometimes a little above, and sometimes below this line, and at a distance varying from ten to fifteen centimetres from the umbilicus. At the seat of this pain so excited, may be felt a movable body resembling the ovary in shape and size. Its presence is most frequently felt on the left side, the existence of a resisting surface—usually the back of the foetus—being necessary in order for the body to be felt and the pain to be excited. Sometimes this can only be done during the contraction of the uterus. Dr. Budin thinks it possible that the "ovarian pain" has been confounded with certain neuralgiæ which several authors have termed rheumatism of the uterus, and with the pain sometimes caused by the pressure of the head on the uterine wall. None of the women upon whom this tenderness had been produced were hysterical.

Causes.—The various forms of neuralgia peculiar to females, are most frequent in individuals of sensitive dispositions, especially such as possess the nervous or hysterical constitution. The exciting causes, which are partly psychical and partly physical, are such as are calculated to excite and maintain a constant irritation of the female sexual organs, such as amorous conversation and reading, dallying with male companions, dancing "round dances," libidinous friction of the parts, onanism, incomplete or excessive sexual intercourse, and whatever is calculated to produce congestion or nervous erethism of the genital organs. In many cases, the disease is secondary to pathological conditions in the uterus or elsewhere, especially to the various forms of uterine displacement, structural lesion and chronic engorgement, spinal disease, etc.

Prognosis.—The prognosis is good whenever the exciting causes can be permanently removed, but unfortunately these causes are generally most pronounced, and most difficult to

reach, in those in whom the predisposing causes are also the strongest. Hence, instead of being able to diminish the latter, the practitioner often finds that he has to contend with an additional one, in the shape of a "bad habit of action," to which the nervous system has become accustomed. However, the similarly-acting remedy, if well chosen, will generally effect a satisfactory cure, even in the most difficult cases, provided due attention be paid to the removal of the exciting cause, and the correction or avoidance of all pernicious habits.

Treatment.—In these, as in other forms of neuralgia, electricity, either in the shape of *galvanism* or *faradization*, is one of the most efficient agents we can employ. The interrupted current should only be used in those cases in which the constant or galvanic current fails to give relief; and when applied directly to the uterus, the vaginal electrode should be insulated. The current should always be weak, especially at first, and in no case should it excite pain.

The *vaginal douche* is a favorite mode of applying remedies locally to the vagina and uterus. A drachm of the fluid extract of *Cimicifuga* or *Caulophyllum* to half a pint of tepid water, injected night and morning, or, in cases of dysmenorrhœa, just before the commencement of the menstrual period, will often prevent the return of the paroxysm at that time, and greatly ameliorate it when present. Even a simple warm-water douche will sometimes give great relief, as will also warm fomentations to the hypogastric region.

The leading remedies for neuralgia of the vagina are: *Belladonna*, *Calcarea*, *Ferrum acet.* and *mur.*, *Graphites*, *Hyoscyamus*, *Mercurius*, *Natrum mur.*, *Nux vom.*, *Phosphorus*, *Platina*, *Stramonium*, *Sulphur* and *Zincum met.* The chief remedies for uterine neuralgia are: *Aconite*, *Belladonna*, *Gelsemium*, *Cimicifuga*, *Caulophyllum*, *Magnesia mur.*, *Hypericum perf.* and *Veratrum vir.* For ovaralgia, we give *Aconite*, *Ammonium mur.*, *Atropia*, *Belladonna*, *Cimicifuga*, *Colocynth*, *Lilium*, *Kali brom.*, *Lycopodium*, *Naja*, *Viburnum op.*, *Xanthoxylum* and *Zincum val.*, according to the special indications.

Aconitum napel. } These remedies, either singly or com-
Ammonium mur. } bined, are indicated when the neuralgia

symptoms are attended with swelling and tenderness of the ovaries, quick pulse, and a feverish state of the system.

Illus. 158.—Dr. J. Marengo Curran details several cases of ovarian neuralgia, which he treated successfully with the above medicine, after the unavailing use of the ordinary allopathic treatment. The symptoms presented by the six cases were, in the aggregate, as follows: *Pain*, dull and aching, or violent and unendurable, in one or the other iliac region, extending along the anterior surface and inner side of the thigh, and attended with swelling and tenderness of the ovary, high, quick inflammatory pulse, dysuria and loss of sleep. In some of the cases the pain was chronic, that is, it lasted all through the month, and got worse at the menstrual periods. In other cases the attacks were violent, acute, and had rather the appearance of ovaritis.—*Dr. E. M. Hale.*

Atropia.—This remedy may be given in ovarian neuralgia in cases where Belladonna is indicated and fails to relieve, or where the character and severity of the pains are such as to demand speedy relief.

Illus. 159.—Mrs. L., æt. 40, mother of seven children. With each of her other children, beginning about the third month, she would suffer with the most excruciating pains in the region of the left ovary, of a cutting or drawing nature, extorting screams from her, and causing her to bend over to that side; the pains were so severe that she said they were unbearable. After continuing in the ovary for awhile, the head was attacked, which would develop spasms of a hystero-epileptic nature. She had previously been treated for them with chloroform and chlorate of potash, but without avail. I began the treatment with 4 to 10 globules of *Atropia*, three times every four hours, until the symptoms abated. She had no more attacks.—*Dr. W. H. Blakeley.*

Belladonna.—This remedy is specially indicated in ovarian neuralgia, in cases where the attack is excited by sudden congestion, occurs in paroxysms, and is attended with violent thirst, nausea and vomiting.

Illus. 160.—Mrs. W., confined three months ago; lochial discharge suddenly ceased a fortnight after confinement; since

that time she suffers intense agony with intermittent neuralgia of the right ovary; violent clawing, griping pains, causing constant exclamations for twenty-four hours at a time without interruption; at length the pains ceased entirely, but invariably returned with renewed vigor; much thirst and vomiting during the pain, which occurs day or night; for two months and a half took much laxative and other medicine, as well as opium in abundance. *Belladonna*²⁰⁰, in water, every two hours, cured in a week, and she has remained well since, a period of two years.—*Dr. Wesselhøft.*

Cimicifuga.—*Cimicifuga* and its active principle, *Macrotine*, is indicated in ovaralgia in all cases where there is severe pain in the head and back; also in dysmenorrhœic cases, or where the pains are increased at the menstrual period.

Illus. 161.—Miss C. S., æt. 23. Face pale, hands and feet cold, hand tremulous; complains of great pain and soreness in a small spot, just left of spine in lumbar region; this pain frequently passes forward, through the left ovary and down the thigh to the knee; severe pain in the head, extending from orbital region to vertex; no appetite, nausea even after small quantity of food; is losing flesh very rapidly, and feels exhausted and very irritable; the pain in the back is intolerable at night, and all symptoms increased at menstrual period; menses regular and normal in appearance. Examination revealed marked tenderness of left ovary, but no uterine displacement. *Macrotine*^{1x} gave relief in less than forty-eight hours. This condition not being permanent, the sixth decimal of the same drug was given, and patient soon restored to health, with no return of the pain, even at the menstrual period.—*Dr. May Howells.*

Tarantula.—This remedy is indicated in hysterical constitutions, when the pains are of a spasmodic, cramping character, attended with nervous excitability, anxiety, restlessness, cardiac oppression, weeping, and discharge of urine.

Illus. 162.—After a fall; hardness, swelling and tenderness in the hypogastric region and in the uterus, which was the seat of burning and cramping pains radiating to the hips, groins thighs, and particularly on the left side, the pains were so ex-

cruciating that she was obliged to scream, constantly and desperately, and were greatly increased during defecation, or when excited by it; sanguineous leucorrhœa; constant desire to pass urine, which was clear but difficult to void, passing drop by drop with burning pain. Tongue dry, thirst, pulse small, pale face, desire to constantly move the legs, præcordial anxiety, sadness, weeping and fear of death. *Conium*¹² greatly relieved, but *Tarantula*¹² had to be given to complete the cure.—*Dr. F. Firmat, Spain.*

Ustilago madis.—This remedy is indicated in ovarian irritation arising from dysmenorrhœa, or vice versa; also in ovaralgia occurring at or near the climacteric period.

Illus. 163.—Ovarian irritation in a lady past the critical age. Mrs. N., æt. 54; nervous temperament; has a constant pain in left ovary passing down the hip, so severe that she has to limp when walking; the pains are sharp, and at times pass down the leg with great rapidity; every few days has quite a swelling in the left groin; cannot bear pressure over the ovary; bowels regular and otherwise well. Two prescriptions of *Ustilago*, 15th dil., lasting a week at a time, gave her perfect relief.—*Dr. W. H. Burt.*

Xanthoxylum.—This remedy, according to Dr. Cullis, is more especially indicated in females of spare habit, nervous temperament, and delicate organization.

Illus. 164.—Mrs. D., æt. 26, spare habit, scrofulous diathesis; had suffered for years from dysmenorrhœa. Her sufferings were so great, that she would be confined to her bed for two or three days. She had tried all sorts of treatment, but without any relief. She came under my care saying the only way she could live through her menstrual period was to drink whisky, or gin, until she was intoxicated. For several months I treated her with the usual remedies, but without any beneficial result. I then gave her *Xanthoxylum*, 3d decimal; this completely cured her. She was extravagant of her praises of this remedy. It has never failed to relieve her.—*Dr. Cullis.*

Xanthoxylum is particularly Called for when pain runs down the Crural nerve.

CHAPTER IX.

SPINAL IRRITATION.

Spinal irritation, or, as it is sometimes called, *spinal neuralgia*, is a disease characterized by a hyperæsthetic or morbidly sensitive condition of a greater or less portion of the spinal column, and by sentient and motor disturbances in one or more of the organs and parts to which the nerves proceeding from the affected portion of the spine are distributed.

Symptoms.—The symptoms, which are perhaps more diversified than in any other form of disease, vary according to the particular portion of the spine affected; the only symptom common to all cases being the tenderness upon pressure on one or more of the spinous processes of the vertebræ. In making a careful examination of the spine in these cases, we may find either a general tenderness along the whole or a large portion of the vertebral column, or, as is most commonly the case, we may find the tenderness limited to a very few of the vertebræ, one or two of which are generally more sensitive to pressure than the others. The degree of tenderness also varies greatly, sometimes requiring considerable pressure to develop it, while in other cases the patient will shrink at the lightest touch. I have known the sensitiveness to be so great, that a very moderate degree of pressure would cause the patient to scream out as though cut with a knife; and cases are sometimes met with in which nausea or vomiting, syncope, and even convulsions, are excited by any external pressure, however slight. The tenderness is usually most marked in the dorsal region; and many cases are attended with no pain or uneasiness except in that portion of the spine. Sometimes

there is an intense aching at the seat of lesion; and occasionally pains shoot from it anteriorly, or downward into the lower extremities; but in most cases, no pain is experienced except when pressure is made on the affected portion of the spine, so that the real nature of the disease is liable to be overlooked, unless the attention of the practitioner is drawn in that direction by the peculiar character of the general symptoms. These, as we have said, are of the most diversified nature. They may be divided into groups corresponding to the particular part of the spine affected, the functions of those organs usually showing signs of disturbance, the nerves of which are connected, either directly or indirectly, with the seat of lesion. Thus, pressure upon, or irritation of the cervical region causes headache, vertigo, sleeplessness, loss of memory, disordered vision, facial neuralgia, soreness of the scalp, deep orbital and circum-orbital pains, ulceration of the cornea and other trophic changes, hallucinations of sight and hearing, nausea, vomiting, dyspnoea and other respiratory troubles, palpitation of the heart, and all such disorders as arise from irritation of the pneumogastric nerve and its connections. When the affection is seated lower down in the cord, we may have any or all the disturbances to which the respiratory, circulatory, digestive and sexual functions are subject, such as violent laryngeal cough, spasm of the glottis, distressing dyspnoea, angina pectoris, gastralgia, neuralgia of the liver, colic, ovaralgia, hysteralgia, amenorrhœa, urinary troubles, hyperæsthesia, anæsthesia, convulsions, paralysis, and in fact almost every functional disorder. "In short," to use the expressive language of Wood, "there is scarcely a single morbid sensation or perversion of function, occurring in any part of the body beneath the head, which may not originate in spinal irritation; and, in all cases in which the course of any existing disorder of this kind is obscure, it should be sought for in the spine." The disease often lasts for years, but is frequently attended by remissions and exacerbations, the latter of which are apt to assume such a different phase from the preceding ones, as to be mistaken for a fresh attack, and even for an entirely new disease.

The following case will illustrate the diversity and change-

ableness of the symptoms of spinal irritation, as well as the danger of mistaking it for some other form of disease.

Illus. 165.—Mrs. W., æt. 37, has had prolapsus uteri, leucorrhœa, ulceration of cervix uteri, and a general relaxed condition of the uterine system, for about twelve years. She has a good deal of spinal irritation, pain in the lumbo-sacral and cervical regions, and headache. She has had gastritis, and very frequently, in fact most of the time, has been troubled with a burning in the epigastrium, pulsation in the epigastric region about one and a half inches to the left of the median line, roughness and rawness of the throat, tongue also red and raw. She had a chill the evening previous to my being called. Found her with a high fever, intense headache, pain in the back and limbs, yellow coated tongue, severe burning in the epigastrium, with tenderness on pressure, and diarrhœa. The next day I found her up, no fever, slight headache, tongue clean, no diarrhœa, but the burning and tenderness continued, with inability to keep food in her stomach without nausea and some regurgitations. Treated her for a week without any further improvement, the burning in the stomach still being a prominent symptom, pain in the cervical and lumbo-sacral regions, intense headache, mostly in the occiput, tongue red, raw, and with a moist white coating. She now had another chill, lasting nearly an hour, but no fever followed. The symptoms during the next three days were: severe burning in the stomach, inability to retain anything upon it except a little cold water, faintness, pulse weak and wiry, at times almost imperceptible, then full and strong, but not above 80, pulsation in the epigastric region, very distressing, worse by lying on her right side. Severe pain in the cervical and lumbo-sacral regions of the spine, would flinch on slight pressure, numbness of extremities, mostly on left side, jerking of left side of body, confined principally to left shoulder, arm and eye. Turning in of left eyeball, left eye injected, red and watery, a sensation of falling, as if she would drop asleep, sleepiness, yet inability to sleep, if she would get partially asleep she would rouse up with a jerk, moving the whole body in bed, intense pain and pulsation in the occiput at the base of the brain. Stool loose,

then natural, tongue red at the tip and edges, with thick white coating in the centre. The next three or four days her pulse ranged from 80 to 140, which I attributed to gastritis, resulting mainly from excessive irritability of the spinal centre, her uterine difficulties being the primary cause. Dr. Williams, a brother of the patient, was now summoned by telegraph. He examined the patient and pronounced the case one of typhoid fever, and another physician, a former pupil of his, agreed with him. I was finally discharged because I could not agree with Dr. W., in calling it typhoid fever, all the pathognomonic signs of which were wanting.—*Dr. J. Outwater.*

Causes.—The disease is mostly confined to females between the ages of puberty and the climaxis. This shows that, as a general rule, it is related, either directly or indirectly, to the female sexual system and functions; for although the disease is sometimes met with in children and in men, it is not only far less frequent in them, but also much less extensive and severe. Moreover, it is almost always associated with uterine disorders, or with sexual excesses, and loss of vital fluids, such as menorrhagia, metrorrhagia, leucorrhœa, over-lactation, though it may arise in either sex from debilitating causes. Hence, anæmia, exhausting diseases, hemorrhages, spermatorrhœa, and onanism are also exciting causes.

Pathology.—The pathology of spinal irritation has long been a mooted question, and cannot even yet be considered settled. The most opposite views have been, and still are, held on this subject. Hammond is positive that the disease is due to anæmia of the posterior columns of the cord. Hamilton thinks the symptoms may be owing either to an anæmic or hyperæmic condition of the cord. There are two or three facts which appear to furnish strong presumptive evidence in favor of the anæmic theory. 1. The disease is almost entirely confined to anæmic, debilitated and poorly-nourished subjects. 2. Tonics and good nourishing diet always benefit the patient. 3. Whatever depresses or has a debilitating influence on the patient, aggravates the disease.

Diagnosis.—The fact that spinal irritation is frequently mistaken for some other disease, shows that the diagnosis is

sometimes very difficult. There is one pathognomonic symptom, however, upon which we can generally depend, namely, spinal tenderness; but unless this symptom is very pronounced, we cannot always be certain that spinal irritation is the cause of the trouble. Caries of the spine is also attended by this symptom; but as this disease usually commences in childhood, is confined to scrofulous subjects, and is marked by the characteristic spinal prominence and constitutional symptoms, there will be little danger of confounding it with the disease under consideration. Spinal congestion may be distinguished from irritation by the aching produced when a sponge dipped in hot water is passed over the spine. In spinal congestion, also, there is more or less anæsthesia, numbness and formication, instead of hyperæsthesia, as in spinal irritation. In spinal meningitis the spinal symptoms are similar to those of spinal irritation, but the hyperæsthesia and pain on motion are much more acute, and, except in chronic cases, attended with rapidly fatal consequences. In chronic myelitis there may or may not be spinal tenderness, but instead of hyperæsthesia there is generally anæsthesia; moreover, the muscular contractions are painful, and there is always complete paralysis, followed by atrophy, conditions which do not occur in spinal irritation.

The following is Prof. Leyden's differentiation* between spinal irritation after weakening agencies and *tabes dorsalis*: "A nervous debility frequently develops itself after severe typhus, variola, diphtheria, after intermittens and malarious cachexia, after hemorrhages, after too protracted lactation, after long-continued and excessive mental labors, etc., increased by hyperæsthesia and muscular weakness in the small of the back, with pain on pressure on some spinal processes. Drawing pains in the extremities, running along the intercostal spaces to the epigastrium with oppression will be soon added to it; then an unhappy state of mind, off and on sleeplessness, dulness of the head, and the patients usually fear the beginning of *tabes dorsalis*. Leyden differentiates these symptoms of spinal irritation from those of *tabes dorsalis*, and, speaking

*Leyden, *Spinal Diseases*, Vol. II.

of the frequent seminal losses, which are so often, and we believe justly, blamed for them, he remarks that there can be no doubt whatever, that the greater part of the symptoms emanating from seminal losses offers not the picture of organic spinal disease, but rather a nervous debility with spinal symptoms. Such patients look pale and cachectic, but after all appear well nourished and their muscles show no flabbiness. They complain of muscular weakness, especially in the lower extremities, a kind of paretic state, but which never leads to paralysis. They soon become tired, cannot stand much exertion, but after all their muscular strength is good, their walk firm and precise; still they complain more or less of a sensation of insecurity and of staggering, of formications, running down the back to the posterior part of the thighs, and down the legs. In the feet they have a sensation of numbness; a kind of anæsthesia. More rarely we find migrating neuralgic pains; more frequently, difficulties in urinating and defecating; apparently impotence. Then headache, vertigo, dulness of the head, surring of the ears, palpitation, etc., are added to it, and especially hypochondriasis, constantly nurtured by the dread of the *tabes dorsalis* and increased by self-reproaches. Thus the patients seek advice of their physician in the certainty already of a final death from *tabes dorsalis*; but the whole course shows that there is no organic spinal disease. Lallamand, in his work on spermatorrhœa, decidedly denies the severity of such cases, and never witnessed a fatal issue. When Hippocrates mentions that tabetic patients succumb to consumption, he only means that acute pulmonary phthisis, to which young people with a hereditary disposition are liable in consequence of sexual excesses. Genuine palsies, corresponding to a severe spinal disease, have never been observed, but only such symptoms, already mentioned, corresponding to nervous debility reducible to an *irritatio medullæ spinalis* from excessive sexual stimulation."

Prognosis.—The prognosis is generally good, as the causes are such as to admit of being removed or corrected. It is necessary, however, that the patient coöperate with the physician, not only so far as abstaining from every pernicious and debilitating practice is concerned, but by a steady adherence

to the prescribed treatment and regimen. Thus aided, the physician can, in most cases, promise the patient speedy relief, and, if the treatment is faithfully and perseveringly followed up, an ultimate cure.

Treatment.—The treatment, both internal and general, should be especially directed towards the improvement of the patient's general health, the condition of which, as we have shown, is in most cases both the predisposing and the efficient cause of the whole trouble. This calls for the removal, not only of such exciting causes as leucorrhœa, over-nursing, hemorrhage, diarrhœa, spermatorrhœa, or other drain on the system, but a toning up of it by means of good nourishing diet, pure fresh country air, out-door exercise, change of scene, bathing, swimming, coasting, sleighing, romping; in short, a complete change of habit, and of those hygienic conditions which originated, and, if permitted to continue, will promote the disease. We cannot be too emphatic on this subject; indeed, we have no hesitation in saying, that unless the patient's habits and surroundings can be completely changed, the mode of life revolutionized, and the weakened machinery got out of the ruts in which it has fixed itself, all other treatment, however appropriate, will be liable to fail. At the same time, nothing should be said calculated to discourage the patient. On the contrary, many cases will require the best hygienic mental as well as physical treatment, cheering up the patient being of the utmost importance.

The best local application is electricity. One pole of the *galvanic current* should be placed over the tender vertebræ, and the other at some other point. The current should be applied regularly once or twice a day, but not continued longer than from five to fifteen minutes at any one time. It is more especially indicated when neuralgic pains are present, which are generally quickly relieved by it. Other stimulating and rubefacient external applications are more or less serviceable, such as sponging with mustard and water, salt and water, whisky and water, etc.; also frictions along the spine with the flesh brush, hair gloves, or coarse crash towels.

It would be manifestly impossible even to name, much more give the indications of all the remedies to be employed in the

treatment of so Protean a form of disease as spinal irritation. Their appropriateness can only be determined by a careful and systematic study of the case and of the *Materia Medica*. The following list embraces the names of most of the remedies which have been recommended: *Aconite*, *Agaricus*, *Atropine*, *Belladonna*, *Calcarea carb.* and *iod.*, *Calcis hypophos.*, *Chamomilla*, *China*, *Cimicifuga*, *Colocynth*, *Gelsemium*, *Hypericum*, *Naja*, *Nux vom.*, *Phosphorus*, *Rhus tox.*, *Santonine*, *Scutellaria*, *Secale cor.*, *Silicea*, *Sulphur*, *Strychnia phos.*, *Tarantula*, *Tellurium*, *Veratrum vir.*, *Zincum met.*

Cimicifuga.—This remedy is particularly indicated in cases arising from uterine disorders, especially where there is much pain in the dorso-lumbar region and head, with weakness of the lower extremities, worse at the menstrual period and on taking cold.

Illus. 166.—Mrs. B., æt. 42, mother of six children, has suffered more or less from spinal irritation since a miscarriage, which took place about eight years ago. Her greatest trouble is a severe aching pain in the lower part of the back and in the occiput, with occasional shooting pains in the chest, and great weakness, almost amounting to paralysis of the lower extremities. She is always worse at and near the menstrual period and from cold. The pains are aggravated by movement, and most of the time she is compelled to lie quiet upon the bed or lounge. She is anæmic, and her general health is quite poor. The spine is very sensitive to pressure in the dorso-lumbar region, especially over the spinous processes of the twelfth dorsal and first lumbar vertebræ. Prescribed *Cimicifuga* 1x dil., twenty drops in half a glass of water, a teaspoonful three times a day, and a warm lotion, consisting of the fluid extract of the same remedy and water, one part of the former to three of the latter, to be applied to the tender portion of the spine every morning and evening. This treatment was continued until the patient was able to keep on her feet the whole day without inconvenience, a period of about three weeks, when she was sent to the seashore, where she remained the rest of the season, taking the baths and inhaling the sea breezes. She returned perfectly well, and has remained so up to the present time, now about three years.—*Hart*.

Strychnia phos.—Strychnia and phosphorus are two of the most powerful remedies that we have for the disease, and, as is well known, both of them are capable of producing spinal anæmia and tenderness. Where other remedies fail to relieve, this double-headed remedy, as Dr. Wilde calls it, should be thought of.

Illus. 167.—Miss —, æt. 24, has been complaining of aching and weakness in the spine for the last four months. During that time she has been under homœopathic treatment, but with no appreciable benefit, and has been compelled to lie on a couch during the day, because walking, or even standing, aggravates the spinal pain so much. On examining the spine, it was found to be perfectly straight and free from curvature, but there was tenderness on pressure and percussion over the spinous processes of two of the middle dorsal vertebræ. The pain is sometimes burning in character, but chiefly aching, extending frequently to the front of the chest, causing a feeling of uneasiness and nausea. The catamenial flow is regular and lasts five days, the discharge being dark and often clotted. Leucorrhœa generally present in the intervals. The digestive organs are but little affected; some flatulent distention after food sometimes occurs, the tongue being moderately clean. The bowels are regular, but the patient has suffered from external hemorrhoids almost from a child. The hemorrhoids do not bleed, nor cause any pain. The patient sleeps very badly, and has difficulty in getting to sleep. She suffers from cold feet, which are often covered with clammy perspiration, and also perspires in the hands and axillæ. This was the condition of the patient when I first saw her, and she continued to suffer, in a greater or less degree, from the above symptoms for two months, whilst under my care. During this time she took *Agaricus*, *Arsenicum*, *Cimicifuga*, *Gelsemium*, *Ignatia*, *Lachesis*, *Nux vom.*, *Sepia*, *Sulphur*. Some mild hydro-pathic treatment was also recommended, in the shape of spinal washes and sitz-baths, but, it being winter time, and the patient evincing so little reactive power, this part of the curative treatment was postponed. As the result has proved, it was a postponement *sine die*. To enumerate all the medicines the

patient took during the four months before she came into my hands, would be but to specify a goodly proportion of our *Materia Medica*. All treatment having hitherto proved unavailing, the mother began to despair of her daughter's recovery, and the daughter herself began to weary of taking medicine. At this crisis I drew a bow at a venture, and prescribed *Strychnia phos.*, 3x trit., a dose to be taken twice a day. This double-headed arrow (if I may so term it) fortunately hit the mark. Improvement began to show itself in the ability of the patient to walk with less pain, and, after steadily taking this medicine for five weeks, she could go up and down stairs, and take short walks out of doors with comparative ease. For six months the patient had been unable to even walk across the room without increase of pain in the spine. With this accession of locomotory power, the pain in the spine diminished, as did the other symptoms, with the exception of the hemorrhoids. These, however, were present before the spinal irritation set in. The last report I had of my patient was that she continued in good health.—*Dr. F. G. S. Wilde.*

Tarantula.—This remedy is indicated when the antero-lateral tracts of the cord are implicated, as manifested by spasmodic pains, muscular contractions, clonic convulsions, tremblings, general chilliness, etc.

Illus. 168.—The characteristic symptoms of her case were: Excessive hyperæsthesia; a slight touch along the spine provokes spasmodic pains in the chest, and indescribable distress in the cardiac region; at times the heart feels as if twisted over; an intense pricking headache, as from thousands of needles; the body burned all over; headache better by rubbing it against the pillow; she trembled so she could hardly talk. Cured by *Tarantula*²⁰⁰.—*Dr. E. A. Farrington.*

We might multiply illustrations without number, but they would be of but little value, on account of the multiplicity and varying character of the symptoms. As said before, spinal irritation is a disease which above all others needs to be individualized with the greatest precision, both as respects the symptoms of the patient and of the remedy. This, of course, will require study, but that study will often be rewarded by the most brilliant cures.

PART IV.
DERANGEMENT OF THE MENTAL FUNCTION.

SECTION I.
MORAL DISORDERS.

CHAPTER I.
HYSTERIA.

Hysteria, a term derived from a Greek word signifying "the womb," is used to denote a disease characterized by various mental disturbances and hallucinations, and often attended by functional derangements of the nervous system of the most diverse character. This definition is perhaps as good as any that can be given, and yet it falls far short of comprehending all the phenomena met with in the various types of the disease. The fact is, there is not an abnormal sensation or perversion of function that may not at times be associated with this affection; nay, more, even physical changes of the most surprising character may be symptomatically connected with it. Thus, I was once called to treat a lady's knee, which had every appearance of being highly inflamed. It was greatly swollen, red, hot, and extremely sensitive to the touch. Observing that it had been repeatedly cupped, during former attacks, I obtained a sufficient history of the case to prevent an error in diagnosis. This woman, the surface of whose body

contained, by actual count, no less than *nine hundred and sixty* scarificator scars, had been a victim of hysteria for more than twenty years. During that time, the whole armamentarium of old school medicine and surgery had been tried upon her in vain; and no wonder, for her ailments were so numerous as to baffle all medical nomenclature even to name, including as they did the symptomatology of apoplexy, epilepsy, chorea, neuralgia, catalepsy, aphonia, laryngitis, pleurisy, asthma, phthisis, hæmoptysis, dyspepsia, gastralgia, gastritis, diabetes, metritis, hystericalgia, spinal irritation, dropsy, heart disease, pregnancy, cancer, paralysis, and the d—l knows what! At one moment she would apparently be at death's door, and at the next, nothing the matter could be discovered with her. So it was in this instance. Divining from her past history the true nature of the case, I prescribed *Cocculus*³⁰, and at my next visit, six hours afterwards, she was well.

Nature.—Schuetz, who refers the phenomena of hysteria chiefly to qualitative changes in the constitution of the blood, says: "In former times, all manifestations standing in connection with morbid states, disturbances or irritation of the uterine system, were denoted by the same general name of hysterical states, without making any very exact examination of the uterus and its adnexa; it was considered characteristic of hysteria, that it had no characteristic symptom, and that it may manifest itself in so many diverse ways, and the uterus must be somehow complicated with it. But now-a-days a strict examination of every organ is required, and we must find out whether we have to do with a primary diseased state of a certain organ, and whether all the other organs are relatively sound, or whether the morbid symptoms have to be ascribed to other factors."

That the disorder of the nervous system to which the name hysteria is generally applied, is a disease of the mind; that "it is born in the imagination, and nurtured by fancies which grow morbid from a low state of the nervous system, and, suddenly becoming master of the situation, assumes its realm upon the lightest pretext, and holds high carnival with the motors and affections," is a fact so universally recognized at the present

time, that few even of the best informed are willing to have the term hysteria applied to their ailments. So sensitive are the majority on this subject, that Dr. C. F. Taylor has invented the word *carnomania*—insanity of the flesh—to designate those cases in which, he says, the symptoms are real, and not imaginary. This, however, we think is altogether unnecessary, so far as accuracy is concerned. The symptoms in all cases are real, but the conditions generally denoted by them are not. When a patient presenting hysteriform symptoms, exhibits diseased conditions corresponding to the symptoms, then the malady can no longer be regarded as hysteria, but the actual disease, whatever it may be, represented by the symptoms. Hence the significance of Schuetz's remark, that "hysteria and hypochondriasis disappear from the text-books of our age, and live only in the memory of the laity and old-fogy practitioners."

That hysteria depends entirely on morbid conditions of the imagination, and should be treated as such, is, we think, clearly shown by such cases as the following:

Illus. 169.—A lady who refused to consult with us until a promise was made that we would implicitly believe what she said, affirmed that there was something in her which looked exactly like the yolk of an egg; and so long as it stayed in the region of her liver or stomach, she didn't mind it, but that sometimes it worked up to the throat, which nearly choked her; and at other times wended its way up to the right or left shoulder, where it caused so much pain, that she was obliged to call aid to rub it back to its kennel. She was so sure of the reality of this, that she was willing to declare under oath that it "pushed the skin out," and that she had often moved it with her hand. A few doses of *Ignatia* cured her permanently, and not for a month did we assure her that her egg-yolk was a myth.—*Dr. A. K.*—

Illus. 170.—An unmarried lady, with perfect generative organs, was subject to severe convulsions, sometimes crying, sometimes laughing, and closing with spasmodic muscular contractions. Medicine seemed valueless, and finally a teaspoonful of pepper was ordered for the next attack, with the assurance that she would have a remedy indeed. When the accepted time ar-

rived, an attendant administered the dose—the fire and anger produced by this peculiar method of appropriating condiments, proved effectual. She had but one more light attack, which the sight of the cruet cut short.—*Idem.*

Illus. 171.—A widow lady, who had suffered with this dire disease for some years, in connection with prolapsus, was suddenly left impecunious. When she learned that her relatives would not allow her to visit their homes on account of her fits, they almost immediately left her, and her trouble was thereafter limited to the prolapsus.—*Idem.*

Illus. 172.—The patient was a young lady who came to the doctor from Rhode Island for treatment. She had been in bed for months. The medical experience of her own state had been exhausted. Dr. W. A. Hammond advised a longer continuance in bed. Dr. Mitchell made three visits before he began treatment. The peculiarities of the case were spinal weakness and an inability to straighten the lower extremities. At his fourth visit the doctor requested his patient to straighten her limbs. "But I can't." "But you *can*. Are they never straightened at night?" "Yes, Doctor. No one ever asked me that question before." The legs were straightened with but little difficulty. "Now, be kind enough to sit up." "But that is impossible; I have not been able to do it for two years." "You are able now. Please sit up." Patient sat up. "Bring her wrapper, hose and slippers and put them on; put on a necktie; belt her waist. Now I wish you to stand." The patient now began to cry. "Good morning," said the doctor, taking his hat. "Where are you going, Doctor?" "I am going away. I never attend patients who do not obey me." "Come back, Doctor; I will obey you." "Then please stand up." She stood up. "But, Doctor, it makes me so dizzy." "I expected it; take my arm." She took his arm. He led her slowly out of the room, down stairs and out of doors. She returned without aid, and did not go to bed again. She was cured. This is given as a sample of Dr. Weir Mitchell's method of treating hysteria. He is never unkind, never rough, but inflexible, quick in manner, decided in speech, yet gentle and exceedingly polite.—*Boston Med. and Surg. Jour.*

Symptoms.—We shall not attempt to give all, or even the greater part, of the so-called symptoms of hysteria; as it is only necessary to bear in mind that the disease simulates almost every known affection. There are a few characteristic symptoms and conditions, the existence of which should lead us, in the absence of any discoverable lesions, to suspect the existence of this disease. Of this character are those constituting what is called the *hysterical fit*. This frequently sets in by the patient screaming out, or making an unintelligible noise with her mouth, and then falling to the ground in an apparently unconscious state; the trunk and limbs then become strongly convulsed. "The head," says Watson, "is generally thrown backwards, and the throat projects; the face is flushed; the eyelids are closed and tremulous; the nostrils distended; the jaws often firmly shut; but there is no distortion of the countenance. If the hands are left at liberty, she will often strike her breast repeatedly and quickly, or carry her fingers to her throat, as if to remove some oppression there; or she will sometimes tear her hair, or rend her clothes, or attempt to bite those about her. After a short time, this violent agitation is calmed; but the patient lies panting, and trembling, and starting at the slightest noise or the gentlest touch; or sometimes she remains motionless during the remission, with a fixed eye, till all at once the convulsive movements are renewed; and this alternation of spasm and quiet will go on for a space of time that varies considerably in different cases; and the whole attack frequently terminates in an explosion of tears, and sobs, and convulsive laughter." During the paroxysm, the patient complains of a peculiar sensation known as the *globus hystericus*. It is usually described as a ball rolling about in the abdomen, then rising to the region of the stomach, and afterwards to the throat, where she feels as though she was choked. The patient is troubled more or less with borborrygmi and flatulency; and towards the close of the fit, or soon after it is over, she generally passes a large quantity of pale limpid urine. In most cases the fit resembles epilepsy, but differs from it, according to Marshall Hall, chiefly in the larynx never being entirely closed, while in epilepsy it is

closed. This explains how it is, that in the former the respiration is heaving and sighing, while in the latter the patient makes violent, but ineffectual efforts to respire.

The mental symptoms, however, are the ones which are usually the most characteristic. If we observe the general demeanor of the patient, we shall find her to be fitful and capricious. She is alive to every trivial impression, and commonly has a thousand notions, the most absurd or trifling of which she defends with the obstinacy and seriousness of the most important. The opposition which such views are apt to encounter from her friends, renders her extremely sensitive and suspicious, and finally ends in leaving her a prey to melancholy and depression of spirits. At the same time, perhaps, she exhibits an artificial cheerfulness in striking contrast to her real feelings, and which is well calculated to deceive the most penetrating observer. Such is a picture of the mental condition of some of the lower grades of hysteria; in the higher degrees the mental derangement is more marked. The depression may be so great as to seriously threaten the sanity of the patient; while in most cases the temper is extremely irritable, and in some cases violent. At the same time, strange as it may appear, the will-power is often quite lost, as we have seen in Illus. 172. It is, however, capable of being excited, and to such an extent as to arrest the paroxysm. As a general rule, it is only necessary to anger the patient, to accomplish in a moment what no amount of medicine could effect. Notwithstanding the deficiency of the will-power, the general weakness of the nervous system renders the patient hypersensitive. She complains of a thousand unpleasant sensations and impressions, both internal and external, which a healthy individual would not notice; and these impressions are often the opposite of what others experience. Agreeable odors are to her repulsive, and repulsive ones are agreeable. The appetite and taste are so perverted, that she not unfrequently selects the most unsuitable, and even the most unpalatable articles of food for her diet. Her likes and dislikes, of every kind, are equally unreasonable and unaccountable. Her best friends she often regards as her worst enemies. Sometimes she seems

insensible to pain, thrusting needles into her flesh, or endeavoring to excite attention and sympathy in some other equally strange way. In short, so far as the phenomena of hysteria are concerned, although they vary in every conceivable manner, the whole may be summed up in the one phrase, *perversion of function*.

Diagnosis.—A disease that simulates at times almost every known malady, is of course very liable to be mistaken for some other affection. Dr. Buck mentions three cases which came under his notice in a single year, which had been treated for congestive chills and heart disease, which were found, on careful investigation, to be simply hysteria. I was once called in consultation to a case of hysterical coma, which the family physician pronounced to be apoplexy. The patient had fallen in what appeared to be an apoplectic fit, and when I saw her she was unconscious, with stertorous breathing and insensibility. I was satisfied the case was one of simple hysteria, first, because the patient was a buxom German girl of eighteen; 2d, because there was no paralysis; and, 3d, because she had a few hours before, when exhausted and over-heated by washing, hung out the clothes in her bare feet, when the ground was covered with snow. I recommended cold to the head, warmth to the feet, the interrupted current to the uterus per vagina, and hot fomentations to the hypogastric region. The next day the menses appeared, relieving her at once of all her unfavorable symptoms.

The superficiality, so to speak, of the symptoms, is often sufficient of itself to establish a correct diagnosis; but if not, then the physician owes it to himself, as well as to his patient, to make a thorough examination, and so, by the principle of exclusion, determine the real nature of the disease. The following instance shows, not only the necessity of adopting this plan in all doubtful cases, but how careful physicians ought to be not to destroy a life's happiness by a wrong diagnosis, and a mischievous prognosis founded upon it.

Illus. 173.—A young lady, æt. 20, engaged to be married, suffered from hysterical fits, and, in shorter or longer intervals, from hemoptæ. The most celebrated physicians of Naples pre-

scribed the usual remedies without any benefit, and therefore advised the breaking off of the engagement. I could only find in the right apex slight rattling murmurs, but all other manifestations of tuberculosis were wanting, and therefore advised marriage as the best, the only remedy necessary for a cure. As heredity was impossible in this case, and as there never were any febrile symptoms during the hemoptæ, and during every interval physical examination proved an entire absence of any chest disease, and as other hysterical symptoms were present, I considered the hemoptæ a mere vasomotory disturbance, and urged matrimony. My advice was followed, pregnancy followed soon, and the young mother now enjoys the very best of health. In another case, a regular blue-stocking of a woman was attacked with hysteric hemoptæ, and here also physical examination revealed a total absence of any tuberculous infiltration. She also married, and that was the last of her hemoptæ.—*Dr. Franco.*

Causes.—The fact that hysteria is almost exclusively confined to the female sex, and that it occurs only during adult life, shows that it is very closely related to the sexual sphere of woman, and hence it is not at all strange that it should have received the name by which it is generally known. Moreover, as we have already stated in a previous chapter, Dr. Chairon has been able, by compressing the ovaries, to so excite the reflex sympathies of the epiglottis and of the larynx, as to produce the globus hystericus, dysphagia, etc., which pertain to fits of hysteria. These facts, however, only serve to show the reflex excitability of the nervous system, and the controlling influence which the uterine organs and functions are capable of exerting upon it. Says Dr. Reynolds:* “The hysteric state is essentially one of mental perturbation, and it is brought into existence, if not inherited, by those conditions which are most active in producing disorder of the mind—in the male sex by worry, anxiety, overwork, late hours, accidental injuries, and dissipation; in the female sex by vexatious emotions, want of sympathy or success, fever, and mor-

* *Sys. of Med.* vol ii., p. 98.

bid conditions, or supposed morbid conditions, of the reproductive system." Such are some of the exciting causes, but the chief predisposing cause is debility. When the blood is impoverished, or defective in either quality or quantity, the nerve-centres are in a favorable state for its production, for at such a time any irritation, even the most trivial, may excite the reflex phenomena characteristic of the disease. Hence it is that woman, whose organization is not only more delicate than that of man, but whose nervous system is constantly exposed to derangement by uterine disorders, is much more liable to the disease than her male companion. Other causes of the disease are faulty education and modes of life, and all agencies tending to produce debility, such as loss of vital fluids, deficient nourishment, impure air, etc.

Prognosis.—If the disease be of long standing, the prognosis, so far as a radical cure is concerned, is very unfavorable. If, however, it can be clearly traced to poverty or paucity of blood, and there are no established habits to be overcome, the chances of cure are much better. If the patient is young, in good health otherwise, and the mental symptoms predominate, the physician may reasonably hope, by the timely exercise of his own will and firmness, to so excite and sustain the will-power of his patient, as to be able to effect a speedy and lasting cure; but if, on the contrary, his patient is somewhat advanced in life, and has suffered from a long continuance of the disease, and especially if there are pernicious habits and mental and moral obliquity to contend with, his task is well nigh as difficult as was that of cleansing the Augean stables. However, as the following cases will show, some of the most unpromising cases of hysteria have yielded to suitable hygienic treatment and the homœopathic remedy.

Treatment.—If there is any disease that calls for a stricter individualization, and a closer study of the *Materia Medica*, than others, that disease is hysteria. Instead, therefore, of giving a long list of remedies, not one of which, perhaps, would be appropriate to the case in hand, we shall simply present a few of the most noted and reliable of them by way of illustration.

Anacardium.—Where the mental symptoms predominate; also when there is pain in the stomach or about the heart.

Illus. 174.—Mrs. V., pregnant, primipara; had morning sickness; relieved while eating and for some time after eating; subject to a form of hysteria, in which there was pain and disturbance about the heart—cardialgia. All relieved by *Anacardium*²⁰⁰.—*Dr. H. Noah Martin*.

Belladonna.—Belladonna is indicated in cases where the paroxysms occur at the menstrual period, which is painful, and attended with severe frontal headache; aggravated by motion, noise and light.

Illus. 175.—Miss C., æt. 16, nervo-sanguine temperament, light brown hair, blue eyes. For four months she has had violent attacks of hysteria at the menstrual period, requiring the care of several persons to keep her in bed and from injuring herself. Has been treated allopathically without benefit. Menses scanty and painful; sensitiveness, with feeling of fulness and pain through the hypogastrium, when going up or down stairs. Disturbed sleep, melancholy, and aversion to seeing any one, with hyperæsthesia of all the organs of special sense. Frequent headache, with pressing pain in the forehead over the eyes, and inability to keep the eyes open in strong light. Symptoms ameliorated by darkening the room. *Belladonna*³⁰ every three hours. Five days afterwards, much better; eight days after, well. Menses returned at the next period with but little pain and no hysteria.—*Dr. M. H. Slosson*.

Gelsemium.—This is an admirable remedy for acute cases of pure hysteria, especially when resulting from, or connected with, a sudden stoppage of the menses from cold or fright, or when occurring in highly sensitive organizations.

Illus. 176.—Mrs. L., æt. 22, married three months; is a delicate, fair haired blonde. Has suffered occasionally from dysmenorrhœa, generally the result of cold, accompanied by violent attacks of hysteria. For two hours she has, with short intervals of quiet, been strongly convulsed, requiring two persons to hold her in bed, and passing off with alternate paroxysms of laughing and crying. Has passed an enormous quantity of pale lemon-colored urine. Has been forced by

her old-school nurse to take large quantities of nauseous teas, but without the least benefit, greatly to the surprise and disgust of the nurse. I prescribed *Gelsemium*, 1x dil., in water, every fifteen minutes, until relieved. After taking six doses she went to sleep, and awoke two hours afterwards sound and in her right mind.—*Dr. Samuel Pritchard.*

Ignatia.—This remedy is regarded by many as a specific for all forms of hysteria. It is specially indicated when there is a hysterical predisposition, or where the attack is caused by fright; and also where there is a predominance of the mental symptoms.

Illus. 177.—Mrs. —, æt. 20, has had good health hitherto, with the exception of some hysterical manifestations; has never had a child, but is pregnant. I found her in bed with labor pains which had existed for several hours; some hemorrhage; the day before had been frightened by a rat jumping into her lap; afterwards trembling. I was struck by the position in which she laid; she was lying on her back without a pillow, and the lower end of the mattress elevated. On inquiring her reasons for her strange position, she said that her pains were better in that position. Taking her hysterical predisposition in consideration, and her fright followed by trembling, I gave her *Ignatia*³⁰ in water. After three hours I returned, found her lying in bed with a pillow under her head. The pains had ceased almost instantly; the hemorrhage was also controlled. She has done well.—*Dr. A. McNeil.*

Illus. 178.—Miss Mary S., æt. 25, complexion dark. Was called to this lady at midnight. On entering the parlor, I found her on the floor, where four attendants were in the act of holding her, to prevent the infliction of personal injury to herself. The sudden approach of the attack, and the frequency of the paroxysms, had prevented the removal to her sleeping apartment. I was informed that twelve convulsions had followed in quick succession, for the preceding three hours, consciousness not having returned between the spasms. Between the clenched teeth I forced a dose of a water mixture of *Ignatia*³⁰, when relaxation immediately followed, and a moment later, a request to be permitted to rise from the floor, and soon

after she retired to her room. But a few more doses of the remedy, the patient sleeping the greater part of the night, having no recurrence of the convulsions.—*Dr. G. B. Cornell.*

Lachesis.—Hypersensitiveness and extreme irritability of the nervous system; trembling; great depression of spirits; bodily weakness and languor; aggravation by harsh words, excitement and sleep.

Illus. 179.—Mrs. H., æt. about 23, nursing her second child, having been under allopathic treatment for some months without benefit, called on me for help. Secretion and excretion were normal; appetite good. But she complained of being nervous, aching all over with hysterical spells of trembling; inability to move, work, or sleep, with very dark forebodings of the future. Any news, or excitement, or harsh word, aggravated her troubles. I ordered her to wean the child and have no intercourse with her husband. Gave *Belladonna*, *Ignatia* and some other medicines without permanent benefit. I now got another symptom—occasional aggravation, not always, after sleep. I gave *Lachesis*^{2m} mornings and nights. She made a rapid recovery on the last prescription, and remains well, now two months.—*Dr. Bahrenburg.*

Lycopodium.—Tonic muscular contractions, or cramp-like pains in the limbs, with extreme weakness and tremor; epileptiform convulsions, with weeping mood; pain in the urethra, with scanty urine.

Illus. 180.—A lady suffering from an attack of hysteria, had a severe spasm of opisthotonus, causing some anxiety, until I learned that her urination was very scanty—none at all, in fact, for hours; during the paroxysms, she shut her teeth very tightly together, grinding them every now and then. The spasms remained entirely tonic. *Lycopodium* stopped the spasms all day. After a slight one at night, four doses of Opium were given, and *Lycopodium* resumed. No more spasms.—*Dr. G. E. Shipman.*

Tarantula.—The indications for this remedy are the multi-form and ever shifting character of the symptoms. The nervous system is in the highest possible state of excitement, one group of symptoms giving place to another in rapid succession.

Illus. 181.—The attacks commenced by spells of yawning and irregular breathing; these were followed by muscular contractions of every sort; fixed look, lasting for several minutes, followed by wild shrieks, and this followed by continued coma; the whole scene varied, from time to time, by hysterical paroxysms of laughing and crying. I have never witnessed more astounding and complicated hysterical phenomena in my life. Epilepsy, catalepsy, chorea, tetanus, hydrophobia, apoplexy, ecstasy, somnambulism, spinal irritation, and ordinary hysteria all seemed to have a hand in producing the constantly shifting panorama of symptoms. The patient, who at the end of a month's treatment was worse instead of better, was cured in two days by *Tarantula*²⁰⁰.—*Dr. W. H. Holcombe.*

CHAPTER II.

HYPOCHONDRIASIS.

Hypochondriasis—so called from its supposed relation to the hypochondriac regions—is a disease of the mental sphere, characterized by a peculiar form of hallucination, which causes the patient to believe that he is suffering from certain organic diseases when he is not. It bears a similar relation to the male sex that hysteria does to the female, there being no disorder of the intellect, nor any physical changes sufficient to account for the sufferings of which the patient complains.

Symptoms.—This disease, like hysteria, presents itself under such a variety of forms, that it would be next to impossible to so arrange the symptoms as to correctly represent any considerable number of cases. We shall therefore give the first place to the mental symptoms, as being not only the most important, but the only ones that can be considered characteristic. The patient's mind is, to a greater or less extent, always engrossed by false impressions concerning the state of his own health. He dwells upon sensations which in many cases may be real, and proceed from actual alterations of structure or function, but they are so exalted and misinterpreted as to convey wrong and exaggerated impressions. In the majority of cases, however, there are no changes present, except such as are produced by the abnormal mental condition of the patient; but the mind is so attentively fixed upon the state of the system, that natural sensations attract attention, and become so intensified by being dwelt upon, that they come to be regarded as morbid, and at last the unhappy individual makes himself truly wretched by giving a loose rein to his weak and dis

dered fancy. He now becomes greatly depressed in spirit, is easily discouraged, always gloomy, and frequently in ill-humor. His sensations, which before were natural or but slightly exalted, are now morbid, and are interpreted by him as some serious disease, which is constantly assuming a new form. He enlightens himself after his own fashion by hunting up cases similar to his own, and becomes so versed in medical lore, that he knows much more about his disease than his physician or any one else; making him impatient of contradiction, taciturn, full of distrust, melancholy, lazy and miserable. At the same time, he never despairs of being cured, having strong faith in treatment, which makes him a plague to his medical attendant. He is always discovering new symptoms, the result of functional disturbances arising from the progress of his complaint, which at first was a form of pseudo-dyspepsia, giving rise to more or less flatulence, irregular appetite, coated tongue, offensive breath, and, in some cases, to heartburn and constipation. After a time, other organs become functionally disturbed. The liver becomes torpid, or fails to act, and diarrhoea follows. The system becomes still more disturbed; there is palpitation of the heart, frequent flushes of heat, rush of blood to the head, vertigo, chilliness, syncope. Any or all of these symptoms may belong to a particular case, and these are generally increased by the constant drugging and physicing which the patient delights to undergo. The irritation and disturbance set up by these processes, together with the anxiety and torment caused by the patient's mental condition, sooner or later produce marked impairment of the digestive and assimilative functions, and that which began as a mental disorder, is at last complicated with organic lesions of greater or less significance.

Causes.—Heredity is an important factor in many cases of hypochondriasis. The disease is often met with in individuals, the near or remote ancestors of whom exhibit traces of insanity, epilepsy, or some other severe nervous disorder. The disease occurs chiefly during middle life, and among those who are harrassed by anxiety, in consequence of losses, or failure to provide for dependent relatives; or else among those

who, reared in affluence and indolence, are not only sufferers from chronic ennui, but from a consciousness that life is to them a failure. To these causes may be added such agencies as tend to weaken and impair the integrity of the nervous system, such as severe mental shocks, late hours, dissipation, gastric disturbances, sexual excesses, onanism, syphilis, long-continued ill-health, etc. While these are the ordinary causes of hypochondriasis, it should not be forgotten that organic diseases of the stomach and liver are apt to give rise to similar symptoms, and therefore such symptoms should in every case be carefully examined into and weighed.

Prognosis.—The prognosis is favorable in all cases where the patient's habits and mode of life can be changed for the better. Owing, however, to the fickle disposition of the patient, it is not always easy to enforce the necessary regulations, and where this is the case, a successful termination cannot be safely predicted. The same is true where the assimilative functions have become greatly impaired, especially if onanism or sexual excesses are at the bottom of the trouble. It is rarely the case, however, that the disease gains such headway as to endanger the citadel of life.

Treatment.—To minister successfully to a mind diseased often requires moral, rather than medical treatment; and in no case can such treatment be safely neglected. In fact, the administration of medicines, however needful and salutary they may be in themselves, may so encourage the hypochondriac in his false belief, as to do more harm than good. The chief aim, therefore, should be, to impart vigor of body and cheerfulness of spirit to the patient, and this may often be best effected by such healthful physical exercises as, while they help digestion and divert the mind of the patient from his own troubles, will furnish an adequate motive for his exertions, and produce little or no fatigue. Sometimes this may be done by engaging the hypochondriac in works of benevolence and charity, such as require the personal attention and attendance of the patient. In other cases, some profitable and healthful employment, by improving the pecuniary circumstances of the patient, will most contribute to his recovery.

A third class, enfeebled by a life of seclusion, but naturally fond of sport, may need a course of out-door exercises, such as gardening, horse-back riding, etc. In short, the physician should take into consideration all the circumstances and conditions of the patient, and prescribe accordingly. Having done what he can to promote the general welfare of his patient, he should next make a careful study of the symptoms, with the view of prescribing such medicines as the disordered functions require. These he will be likely to find in the following list: *Anacardium*, *Arsenicum*, *Asafetida*, *Aurum*, *Calcarea*, *Cannabis ind.*, *China*, *Cimicifuga*, *Conium*, *Ignatia*, *Mercurius*, *Natrum mur.*, *Nux vom.*, *Petroleum*, *Platina*, *Pulsatilla*, *Sepia*, *Stannum*, *Staphysagria*, *Sulphur*.

Asafetida.—Hypochondriasis attended with flatulence, torpor of the liver, indigestion, constipation, loose cough and great depression of spirits.

Illus. 182.—T. S., a man, æt. about 45, who had run through a large fortune by early dissipation, and who had an interesting family, consisting of a wife and four children, had for twelve years suffered from hypochondriasis and the abuse of medicine. I knew something of the history of his case previous to his applying to me for treatment, as it had been a standing subject of conversation among the medical fraternity for a long period. The principal symptoms were: great depression of spirits, flatulence, torpid action of the stomach and liver, constipation. The patient had convinced himself that his internal organs, to use his own language, "were slowly undergoing liquifaction." Upon this subject he was quite fluent, supporting his views by a number of ingenious arguments. But when I questioned him closely as to his symptoms, he was averse to answering. Wishing to sound his mental condition more fully by throwing him off his guard, I told him I did not think there was anything the matter with him. "Nothing the matter!" said he; "look here." And suiting the action to the words, he thrust his fist under his left false ribs, producing a swashing sound, loud enough to be heard across the street. "Nothing the matter; I should think not!" And with the rapidity of a churn-dasher, he continued

to ply his new vocation with an energy which a Heenan might have envied. The sounds thus produced were a series of explosions, somewhat resembling the rapid beating of waves upon the shore. I attempted to explain to him how the sounds were produced, but he only replied by a more vigorous demonstration of his fist upon the mixture of wind and water, as if to revenge himself on his tormentor, and prove to me that I had made a false diagnosis. Seeing that he was fully convinced of the truth of his theory, I deemed it best to humor the conceit, and prescribed two-grain sugar-coated pills of *Asafatida*, three times a day. This prescription was steadily adhered to for about two weeks, when the quantity had to be reduced on account of diarrhoea. He was now ordered to take the medicine only once a day, in the morning. Under this treatment, in connection with suitable out-door exercise, he made a good recovery, and is now a healthy and successful business man.—*Hart*.

Aurum.—This remedy is best suited to male subjects, especially such as have a loathing of life, or a suicidal tendency; they are extremely melancholy, fearful, taciturn and sullen. Its sphere also embraces religious melancholy, with vertigo, anæmia and vascular and nervous depression.

Illus. 183.—In the spring of 1868, Mr. G., æt. 21, was married. In June his mother came to me and said she believed G. was becoming deranged. She was greatly alarmed about him, and said he had not appeared natural for some time, even before he was married; but she had thought it was from contemplating marriage, and leaving home, and going into business for himself. He was nervous, restless, sometimes cheerful, but more often excitable, angry and passionate without cause. He was naturally mild, gentle and cheerful. He could not set himself to work, could not attend to his business, could do nothing satisfactory if he tried to do it. He was taken home to his parents and I visited him there. In a long conversation with him alone, I gradually drew from him a confession; the idea possessed him that his case was hopeless, that he was himself the cause of all his troubles (self-pollution), and that he should never be any better until, as he said, "my

blood flows." I gave him Nux; but he grew worse, more excitable and passionate, sleepless and uneasy; disliked to see anybody; would hide if he saw any one coming. One day his mother saw him in the pantry with the butcher knife, feeling its edge. She courageously demanded the knife, and he reluctantly gave it up; was very angry. He then went for his father's razor, but she managed to get hold of it first; foiled again, he was terribly angry, and threatened all sorts of things. At this time I made another visit, and learning these facts, I gave him *Aurum* 6x trit. He had to be watched continuously. In a few days he became more quiet, not so excitable, slept better, improved every way, and rapidly. He soon lost all desire for suicide. In six weeks he was well, and returned to his business.—*Dr. J. L. Gage.*

Cannabis Ind.—Strange illusions concerning one's health; great depression of spirits, amounting to despair, with apprehension of approaching death; constantly studying his own symptoms, and theorizing about them; religious melancholy; depraved appetite, with pain in the stomach, flatulency, and cold extremities.

Illus. 184.—H. R. M., æt. 51, married, has led an idle but not vicious life. About seven years ago he became deeply religious, since which time he has exhibited a state of religious melancholy; his former life of idleness so works upon his conscience, as to excite in his mind constant apprehensions of speedy death. He is also a prey to morbid fancies concerning his health. He is troubled with flatulence, coldness, alternating with flushes of heat, vertigo, ravenous appetite, and great uneasiness in his stomach. He imagines that there is a tumor growing in his stomach, and no amount of argument will convince him to the contrary. About four months ago, a violent storm devastated a farm belonging to his wife, demolishing the barn, and destroying the trees, fences and crops, and causing a loss of several hundred dollars. Since the storm his disease has made sad havoc with both his mind and body. He is now convinced that Providence is against him, and that he will soon be called to answer for an idle and misspent life. He sits in his room wringing his hands and brooding over his

coming fate. He has grown very thin, trembles at every word that is spoken in his hearing, and suffers at irregular periods with nervous paroxysms, attended with chilliness and cramps in his stomach. For several months his bowels have been obstinately constipated. Ordered that he should be taken out to ride daily, whether he wanted to go or not; and prescribed *Cannabis Ind.*³², a powder every three hours until better, then less and less frequently, p. r. n. This treatment was continued during the entire summer, with the effect of restoring him to his right mind, and to a fair degree of health. He afterwards visited Rome, with apparent benefit to both his moral and physical condition, and now, two years afterwards, is in the enjoyment of a remarkable degree of activity and vigor.—*Dr. B. Stiga.*

Nux Vom.—This remedy, according to Bæhr, “holds the first rank among anti-hypochondriac medicines. It corresponds most completely to all the symptoms of the digestive apparatus, to their appearance after a meal, to the disposition to gaseous flatulence and to constipation. Other circumstances of great moment are: the origin of the hypochondria from sedentary habit, deficient exercise with rich living and excessive mental exertions; use of stimulants in order to keep awake at night; moreover, the excitability of the temper which enduces an ebullition of anger from the least provocation; continual cloudiness of the head, with more or less prominent signs of cerebral congestion, more particularly in the case of patients who are fond of wine and good eating.” Its special sphere is material hypochondria.

Stannum.—We give below Hartmann’s estimate of this remedy: “Stannum frequently has a marvellous effect in various spasmodic hypochondriac ailments, which mostly originate in the ganglionic system. By walking about the patient is greatly relieved, whereas his distress returns again in a state of rest, which he would like very much to indulge in, owing to his feeling continually weak and weary, both mentally and physically; this makes him sad and melancholy, and he often feels so discouraged that he could almost weep. If with these symptoms are associated a stupefying, pressing distress in the

brain, as if the skull were in a vice, or other abnormal sensations in the brain, illusions of hearing, distress in the stomach, with regular appetite, feeling of emptiness in the abdomen, constipation, exhausting night sweats, etc., the patient feels in the highest degree miserable, and by exaggerating his ailments, renders life disagreeable to those around him. It is to this kind of hypochondria that *Stannum* will be found to correspond, and where it will always be found effective."

Staphysagria.—This remedy, according to Berjeau, may be employed when there is hypochondria resulting from masturbation, "with great taciturnity, constant uneasiness as to the state of one's health; anxious imagination; imaginary fears; queer notions, that expose the patient to the suspicion of being thought crazy; great deficiency of animal heat, and tendency to take cold; or when the memory is weak and confused, and there is giddiness and sleepiness; the eyes are deep sunken, red and lustreless; the hair falls off; there is gnawing toothache, and caries of the teeth, which are very brittle; a dry cough, aggravated frequently after eating, and indigestion attended with great flatulence, the stools being dry and lumpy. The urine is of a deep red or yellow color, with brick dust sediment; there is continual loss of prostatic fluid, and the sexual desire is impaired; the penis is relaxed with dull and contusive pain in the testicles." This remedy takes high rank in all cases of hypochondriasis attended with seminal emissions, weakness of the lower extremities, and great prostration of mind and body, the result of having led a dissolute life.

CHAPTER III.

MELANCHOLIA.

Melancholia may be defined to be a form of mental disorder, characterized by excessive gloom, despondency and apprehension. There is little or no disorder of the intellect, but the emotion is disproportioned to the cause, and often associated with a suicidal tendency. The disease is not peculiar to either sex, as in hysteria or hypochondriasis, but is common to both sexes, and to all ages above infancy.

Symptoms.—In the young, the disease is apt to assume the form of hypochondriasis. The subjects of it cherish certain impressions concerning their personal or physical appearance and condition, until it renders them morbidly sensitive and unhappy. They concentrate their thoughts upon themselves, until they come to believe that they are wanting in health or comeliness, or that they are laboring under some fatal disease, that is slowly but surely sapping the fountain of life, and that death will soon overtake them. This form of melancholy has already been described under the head of *hypochondriasis* (q. v.). In middle life, the patient, whether poor or rich, is often haunted by a dread of poverty and want. He feels weak and unable to cope with the world, or with the circumstances in which he is placed, and so yields to depression and gloom. He is a moral coward, unable to take care of himself, being despondent, taciturn, fearful, without confidence in himself, unable to extricate himself from fancied debts and obligations, accusing himself of peculations, tormented by self-accusations, depressed by grief, and sometimes so overcome by his morbid views of life, and of his business and social relations, as to be

driven by a sudden impulse to suicide, or other violent conduct. In this condition the mind is wedded to its woe; neither reason nor consolation is acceptable, and sympathy is often violently rejected. As old age approaches, the disease, though met with at every period of life, is more apt to assume the form of religious melancholy. The patient is overcome by remorse and anxiety, often wringing his hands in despair, and sobbing in the greatest distress, without any apparent cause. In other cases there is a settled state of apathy and gloom, the continuance of which is almost certain, sooner or later, to end in a more intense degree of mental alienation, if not in acute mania.

Illus. 185.—A mechanic, æt. 50, came into my office and gave the following narrative: About fifteen years ago he had a fit of the blues, caused by false insinuations. His wife is a monthly nurse, and thus frequently from home. A neighbor remarked that it would be better for a woman to take care of her own household than to labor for others. From that moment he imagined that he lost the love of his wife, became gloomy and desponding. Two years ago he remained at home, while his wife attended to her duties and the children were gone. He went to church after a while, heard mass, but not feeling well, went home and to bed. At 3 P.M., feeling better, he dressed, took a walk, played nine-pins with some friends, and drank some wine, after which he felt like being intoxicated, and had to be brought home. His wife prepared the family supper. Suddenly he was attacked by mania, broke and destroyed everything he could lay his hands on, tore his wife's hat to shreds, and finally attacked his wife with the intention of strangling her. Fortunately she escaped. A few days afterwards, becoming rational, he consulted the doctor. Patient looked well, had no pain, only during his melancholic fits a kind of weariness in the epigastric region, with nausea. No buzzing in the ears; hearing and sight perfectly normal; motory or sensory disturbances he never felt; his speech was intelligent, and he never was given to drink. His sleep had been for some time restless and unsatisfactory. Traveling from home, in genial companionship, was the remedy advised.

Dr. Chatelain.

Such mental disturbances, however, cannot long exist without deranging the bodily functions. Hence we generally find, in different cases, more or less anorexia, headache, sleeplessness, dilatation of the pupils, pallor of the lips and face, redness of the tongue, weakness and irregularity of the heart's action, tremulousness, abolition of the virile powers, suspension of the uterine functions, etc. In chronic cases, the surface is dry, cold, shriveled and insensible; the eyes are sunk in their sockets; the lips parched and thin; the muscles wasted; the body emaciated; the frame bent and tottering; and the general aspect of the patient one of premature old age.

Causes.—Heredity is the chief predisposing cause, the seeds of the malady being found, not only in different branches of the same family, but to a greater or less extent in those who inherit the same temperament. The physical state with which nearly all cases are associated, is anemia; but whether the latter sustains the relation of cause or effect, will admit of question. Certain it is, that powerful moral emotions, associated with great mental depression, will, if long continued, derange the digestive and assimilative functions, and lead to inanition and exhaustion. On the contrary, when there is a strong predisposition to the disease, there is no doubt but that defective blood nutrition, especially if coupled with other exciting causes, is capable of exciting the disease. Such exciting causes may be found in self-abuse, dissipation, late hours, defective alimentation, impure air, or indulgence in habits which interfere in any way with assimilation.

Treatment.—The preliminary remarks made under the head of *treatment*, in the last chapter, should be consulted. The most essential point is, to adopt such measures as will impart vigor to both mind and body. Hence, cheerful society, frequent visits to friends and relatives, new scenery, and objects and subjects calculated to please and divert the mind, with pure air, good food, and regular habits and exercise, are of the utmost importance. Whenever practicable, the patient should be advised to travel, in company with a lively and sensible companion.

Illus. 186.—Was called to M. C., who for several months has

been in a melancholy mood, especially tormenting during the morning hours, yet easily conquered by a walk or visit to friends. The patient is sixty years old, a well-to-do farmer, and of a very kind and generous character. Nearly a year afterwards he takes a walk, without anything strange being noticed by his wife. He perambulates the village and takes the road to a little lake close by. He meets several friends, who salute him, but he fails to respond to their salutations. Arrived at the borders of the lake, he goes into the water and sits down on a stone, and quenches his thirst by drinking the water with his hand. At the approach of a boat, he slides down into the water and disappears. After some time, the boatmen succeed in recovering his body, but it took a whole hour to restore animation. He felt greatly astonished to find himself in bed, and could not recollect anything about it, and when it was told him in all its minutiae, he felt struck with horror. He could not imagine how he, so firm in his religious principles, should think to commit suicide, and assured his family and friends that he never harbored such a criminal thought. He was advised to travel, in company with a friend, and returned after a few weeks, in the best of humor, and his melancholy has left him entirely.—*Dr. Chatelain.*

In addition to the remedies mentioned under *hypochondriasis* (q. v.), the following have been recommended: *Agnus castus*, *Amyl nitrite*, *Ambra*, *Belladonna*, *Helleborus*, *Iodine*, *Kali brom.*, *Opium*, *Phosphorus*, *Plumbum*, *Veratrum*.

Amyl nitrite.—According to Dr. Hoesterman, this remedy is curative if inhaled two to four times a day, four to five drops for thirty-five to forty seconds, till symptoms of hyperæmia appear; dilatation of the blood vessels still continues after the inhalation is interrupted, advising us to be careful in anæmic persons, or in such as early suffer from congestions; the symptoms disappear in from three-quarters to one minute; the physical changes correspond to those of an increase of blood; the eye becomes full of lustre, features more lively, the obstruction to a rapid flow of ideas ceases, and the patient feels more comfortable. All these symptoms correspond to those which a fever produces in a melancholic patient; and as a

fever cures a melancholy, so does the inhalation of *Amyl nitrite*. The sphygmograph shows that it changes the slow pulse into a quick and feverish one.—*Psych. Centrbl.* 1, 1873.

Cimicifuga.—This remedy is particularly adapted to puerperal melancholia, especially when attended with great depression, suspiciousness, and apprehensiveness.

Illus. 187.—Mrs. B. æt. 33, dark hair and eyes, was confined six months ago with her fourth child. Three months before this period she became the subject of idle gossip which greatly worried her. Soon after confinement she became melancholy. She imagined that the whole world was against her, and that she would become insane and be sent to an asylum. She would sit and rock continually, crying and sobbing, feeling perfectly helpless, and satisfied that her condition was beyond the reach of medical skill. This state of affairs continued six months under allopathic treatment before the case came into my hands. Her bowels were costive, tongue furred, and there was tenderness on pressure over the dorsal and lumbar spine. She had been "unwell" but once since her confinement three months before. No other uterine symptoms. Milk normal, and she was nursing the child. Two weeks treatment with *Ignatia* made the bowels more regular, but effected no other improvement. I now prescribed *Cimicifuga* θ , five drops three times daily. Rapid improvement followed, the patient resuming control of her affairs. In two months she reported well, but still needed an occasional dose of *Cimicifuga*. Four months have since elapsed and she remains well.—*Dr. A. F. Stobbs*.

Helleborus nig. } Melancholy, with pale, sunken countenance,
Nux vomica. } slow pulse, lack of appetite, constipation,
 great depression of spirits, obstinate silence, involuntary sighing and moaning.

Illus. 188.—Mrs. P., æt. 63, a small, thin, sallow, and anxious-looking person of highly-nervous temperament, has been observed during the last few days to be extremely irritable and despondent, having been sleepless and restless for several weeks back. She refuses her food, saying always, "Rather give it to the children, we can't afford so much," but has been seen to take a mouthful or two occasionally when she thought

she was not observed. She thinks they are living very extravagantly, although in reality the household expenses are not increased. Instead of being kind and affectionate toward her grandchildren, she is easily irritated by them, and dispenses more blows than she formerly did kisses. She takes no interest in household affairs, as was her wont, is very suspicious, particularly of the servants, and will not go out of doors. During the last two nights she moaned a great deal, and scarcely slept at all. When asked the reason of her strange behavior, she only shakes her head and weeps. Lately she has been reading Harvey's "Meditations among the Tombs," several books of sermons, and other depressing literature, over which she had been frequently seen sobbing and moaning. After hearing this account the patient was sent for. She was led reluctantly into the room, and, without looking at me, sank into an easy chair, where she sat crouched up, silent, the very picture of despair, and every now and then giving quick glances of fright and suspicion towards me and the door, as though she were some dejected prisoner. Nothing would induce her to enter into conversation. She only said she was very unhappy, and that it was wrong to be so. I could detect no physical signs of disease. The bowels were constipated. After advising the removal of all depressing influences, I prescribed *Nux vom.*³⁰, $\mathfrak{m}j$ every four hours. Two days after, when I made my next visit, she was in bed. Her daughter reported that she had been much better till 2.30 this morning, when she awoke with a start, having dreamed that the whole family were to be dead in the morning. She raved to me about some great calamity which was going to befall them, but what it was she would not tell. I noticed now how emaciated she was, and learned that she had been wasting away for several months. No improvement except that her bowels had acted comfortably. One week later, I learned that she had had many ups and downs, from comparative cheerfulness to the depths of despair. Very morose and dull to-day, suspicious about her clothes, and talks vaguely about taking a long journey. She would not speak to me, or answer any questions, but incoherently muttered about something hang-

ing over her, and moaned all the while. *Helleborus niger*³⁰, mj; *Nux vom.*³⁰, mj, alternate every two hours. This appears to have had the desired effect, for when I called a week later, she pleaded hard to stop all medicine, as she felt "quite well," but I advised the continuance of Hellebore, one dose at night, and of *Nux* one dose in the morning. I have since heard, from time to time, that Mrs. P. continues "all right."—*Dr. Samuel Brown, England.*

Veratrum alb.—Great anxiety, despondency and despair; distrusts every one; cold sweat all over; moaning during sleep; frightful dreams; fearfulness, with tendency to start; frequent eructations.

Illus. 189.—An overseer who considered himself firmly established, found himself suddenly dismissed. From that moment a profound melancholy settled on him; he would only endure the presence of his daughter, and would only take food from her. Complained constantly of his dismissal, and gave himself up to despair. *Veratrum album* cured in twenty days.—*Dr. Dulac.*

Illus. 190.—Miss C. G., æt. 28, sanguino-nervous temperament, very intelligent, was sadly disappointed in love. A lawyer of some reputation had paid her marked attention for several years, and she was about to be married to him, when he abandoned her and took up with a much inferior woman, whom he finally made his wife. After his abandonment she became melancholy, and was seldom seen by her friends, though naturally very fond of society. But it was not until after the marriage occurred that she completely broke down; she then distrusted every one; would start when any would approach her; her eyes wandered constantly about; would frequently break out all over with sweat, then burn with fever; her sleep was constantly disturbed with frightful dreams, and attended with loud moaning; she ate but very little, and was troubled with frequent eructations; she became greatly emaciated, the shadow of her former self. Prescribed *Veratrum*³, every 3 hours; cured.—*Dr. Matchowitch.*

CHAPTER IV.

MORAL INSANITY.

By *moral insanity* we understand that form of mental alienation characterized by a perversion of the moral feelings, passions and emotions, the intellectual faculties remaining unimpaired. It may manifest itself either by an unfounded suspicion, jealousy or hatred of others, especially of those to whom the individual was previously attached; by the exhibition of an excitable, cruel and reckless disposition; or by the commission of acts, not only contrary to reason, but to the well-known character and disposition of the patient.

History and Symptoms.—Although Pinel called attention to this disease as early as the first year of the present century, and numerous authors have since written upon it, there are still those who doubt its existence, or who claim, at least, that insanity never exists in an individual without more or less disturbance of the intellect. Numberless cases, however, have been observed, in which there was not only no appearance of intellectual aberration, no hallucination, illusion or delusion, but where the individual could reason just as well as he ever reasoned; in fact, the reasoning powers, instead of being weakened, appeared to have been sharpened. Yet these persons were undoubtedly insane. They were compelled by an irresistible impulse to commit acts contrary to their reason and natural disposition. The man who is a thief to-day was the honest man of yesterday. He who yesterday was kind and affectionate, whose feelings would have been shocked at the sight of cruelty or suffering, is the murderer of to-day. The sober man is suddenly transformed into a drunkard, the chaste man

into the lewd, the generous into the avaricious, and so on. This is not moral depravity. The man has lost his moral equilibrium; he is morally insane.

The disease, however, does not always, nor even generally, commence in this sudden manner. For years, and even for a whole life time, it may not pass beyond the stage of melancholy or eccentricity. And in most cases, for a considerable period previous to its full development, the patient is apt to appear unduly elated or depressed. In the former case, though he may mingle in society, and even transact business like other men, he acts hastily and without deliberation, is imprudent in his transactions, making large purchases, undertaking vast enterprises, entering into wild speculations, and living in a state of high mental excitement. In the other form there is great mental depression. The patient suffers from hypochondriasis or melancholy. He is taciturn, gloomy, and disposed to set a low value upon life, especially his own. He has no ambition, and sees nothing but want and misery staring him in the face. He retires within himself, or shuts himself up in his room, becoming unsocial, solitary and dejected. As the disease advances, the patient becomes exceedingly irritable. The most trifling matters will excite his anger, and the least opposition will often throw him into an ungovernable rage. He then commits acts which clearly show him to be insane. After his anger subsides, he may regret and even apologize for them, but under similar circumstances he will do them again. At such times he entirely loses control of himself. Nothing is too cruel, vile or horrid for him to perpetrate. He may be partially restrained by public opinion, or by fear of personal consequences, but if these are not sufficiently powerful or have lost their influence over him, he may show himself for the time to be little better than a fiend. In whatever way his passions are excited, he now gives full sway to them, delighting in the infliction of pain, in coarse ribaldry, in expressions of hate and revenge, in disregard for the feelings of others, in indecent behavior, in extreme selfishness, and in the most flagrant breaches of propriety. Such indulgences grow upon him, until at last he ceases to have any regard for public opinion, and

acts which before were only committed occasionally and at home, or under great mental excitement, now become habitual, and of public occurrence and notoriety. At last he throws away all restraint. Blasphemy, open lewdness, theft, drunkenness, rioting, attest the complete subversion of the moral sense, and the patient is finally declared to be morally insane. It had been better for both the patient and society, had his insanity been recognized at an earlier period.

In all cases of moral insanity there is more or less disorder of the physical functions. In those cases in which the mind is depressed, there is a torpid state of the general system. The circulation is weak, the pulse slow and feeble, the surface cold and clammy, the extremities cold, the bowels constipated, the appetite impaired, and sometimes almost abolished. As a consequence, there is emaciation, with a corresponding loss of strength. When the passions are greatly excited, there is generally more or less fever, accompanied with headache, sleeplessness, flushed face, coated tongue, thirst, loss of appetite, scanty and high-colored urine, and constipation. In chronic cases the capillary circulation is deficient, the surface being cold, the extremities cold, and the body weak and emaciated.

Etiology, Diagnosis, etc.—The chief cause of this, as of every other form of insanity, is hereditary transmission. Of this there is not a shadow of doubt. So true is it, that in most cases it becomes the chief factor in determining the diagnosis. On this point Dr. Howard, in his lecture on "Man's Moral Responsibility," says: "You will invariably find that the victim is the offspring of parents who, if not actually morally insane, are what is called very eccentric, and you are sure to find that some of their progenitors were actually mad. To find out this fact is a very important proof of hereditary transmission of moral insanity; but this generally is a very difficult task to execute. It is extraordinary, but nevertheless true, that the very last thing that any one will admit is that there was ever insanity in their family, and generally it is only in some accidental way that the discovery is made. The hereditary morally insane are more impetuous, there is less hesitation about them, they execute more rapidly; when there is the

impulse to kill they do kill, or attempt it without any hesitation; when the impulse is to commit suicide they generally succeed, and if saved at the first attempt, they will go at it again and again, till they do succeed, differing from the other form where the patient is very often cured of the desire, when saved in the first instance—so is it with all the other impulses. I have also remarked, that the hereditary morally insane, when their impulse is to drink they never can be cured of the desire; and when they drink they do not get drunk like other men, but for the time being they become regular maniacs. The morally insane from accidental circumstances are generally curable. The morally insane from inheritance are incurable. They may be relieved and discharged from an asylum, but they always turn up again."

Pathology.—Whether caused by hereditary transmission or physical disease, there is in both cases some abnormal condition of the moral portion of the nervous centre. Pathology shows that, as the intellectual functions are not disturbed, the disease must be seated in the cells of the cortical portion of either the lateral and posterior portions of the cerebrum, or in those of the cortical portion of the cerebellum and medulla oblongata. The former is probably the true seat of the malady, as disease or irritation occurring in the cerebellum and medulla oblongata produces a want of controlling power, or what is sometimes called insanity of the muscles. On this subject Maudsley, one of the leading authorities on moral insanity, says: "When an organism is out of harmony with the circumstances in which it should live, by reason of internal derangement, its tendencies are to self-extinction, which it would often reach quickly if it were not carefully guarded from the destructive action of its perverted affinities. Persistent suicidal impulse marks the replacement of the self-conservative, by a similar self-destructive impulse. The impulse to burn, to steal, to kill, are in like manner, occasional symptoms of deranged nerve-element, and have nothing in their nature more exceptional or surprising than other insane impulses."

Treatment.—According to Dr. Earl, one of the most dis-

tinguished alienist physicians of the old school, "the medical treatment of the insane is governed, as in all other diseases, by the general condition or the special symptoms in each individual case, the primary object in view being to restore the physical health to its normal standard, in the hope that the body being sound, the manifestations of the mind will be so." Fortunately, homœopathy offers something better than this for a diseased mind. The mental symptoms of our *Materia Medica* are a vast store-house from which we may select the required remedy, and experience has shown that when administered agreeably to the homœopathic law of similars, our medicines are just as effective in the cure of mental, as they are in the relief of physical disorders. The remedies usually required in the treatment of this form of mental derangement, have already been given under the heads of *hypochondriasis* and *melancholia* (q. v.) It only remains to add a few cases by way of illustration.

Belladonna.—This remedy is indicated in all cases where there is marked cerebral congestion, or determination of blood to the head; the face is red and bloated; there is melancholy, with anguish of mind; or there is great irritability; the patient flies into a violent rage, with little or no provocation; he suddenly screams out, and claps his hands or his head; he is very restless, especially at night, keeping every one in the house awake by his noise and craziness; his manners are foolish, talking, laughing, howling, jumping, singing senseless songs, making lascivious advances, weeping at the slightest provocation, overturning and destroying the furniture, tearing his clothes into shreds, disposed to quarrel without cause, and in many other ways showing that the moral faculties are disordered, and that the patient is not responsible for his actions.

Illus. 191.—Mr. E. H., æt. 38, married, father of six children, merchant; has always been troubled with rush of blood to the head, and once had brain fever with wild delirium; has always been of an over-bearing, irascible temperament and disposition; easily provoked, violent, suspicious, selfish and vindictive. His wife left him three years after marriage, on account of his violent conduct towards her, fearing for her life, but was afterwards induced to return and live with him again, in con-

sequence of his passionate protestations of love and promises of reform. His father was a very passionate man, and was twice arrested and placed under bonds to keep the peace. Since the attack of meningitis above referred to, his conduct has been more violent and eccentric than before; he complains much of his head; is frequently thirsty and feverish; his hair has nearly all come out, leaving the whole top of his head bald; and for the last six months he has been a constant torment to his family and neighbors, both day and night. He will frequently get up in the middle of the night and pump, and pump and pump, without any apparent object; except to annoy his family. He long ago retired from business, or rather, business retired from him, no one caring to deal with so selfish, capricious and passionate a man. Since then he passes the *tedium vitæ* by interference with everybody else's business, and would be constantly fighting with his neighbors if they did not purposely avoid him. He has several times been known to take his gun and a large sack, and on pretense of hunting, go to some out-of-the-way country place, kill a large number of the hens and chickens, and bring home the sack full, leaving the others dead on the place. Once on returning from such a raid, he discovered the approach of the owner, and fearing detection he secreted the sack of fowls in a ravine, where they were allowed to remain and rot. About a month before I was called, he drove his family all out of the house, bolting himself in, and it was several days before they were allowed to return. After that they were in constant fear of their lives, and finally, not having his breakfast ready just at the moment he wanted it, he overturned the stove, struck his wife a violent blow with his fist, and, escaping to the woods, did not return for nearly a week afterwards. It was on this occasion that I was consulted as to the proper course to pursue; whether to treat him privately at home, or send him to an asylum, to which the family was naturally averse. After hearing the above history and examining the patient, I recommended that a trial be made of homœopathic treatment, and if that failed, then to send him to the asylum. I found the patient with a hot head, red face, restless eyes,

very loquacious, yet with his reasoning powers intact; not attempting to defend his conduct, but regretting that he was so easily angered, and complained greatly of his head, which he said always pained him. I prescribed *Belladonna*³⁰, a dose every three hours until the head should be relieved, then every night and morning only. He was to have a watchful, even-tempered and judicious attendant; and to live chiefly upon fruits, vegetables and farinaceous diet, with little or no animal food. This course was steadily pursued for upwards of a year, when the patient's health and conduct were such as to warrant the removal of all restraint and supervision; and I am happy to say, that during the last fourteen months his life has been most exemplary, and all that could be desired.—*Dr. Boudet.*

Ignatia.—Excessive grief over losses real or imaginary; great depression of spirits, with disposition to be alone; fearfulness and timidity, alternating with great boldness and rashness; easily angered, but quickly pacified; extremely anxious and hurried; changeable disposition, yet frequently engrossed by one idea; inconstant, irresolute and impatient; sleep disturbed by dreams; moaning and groaning during sleep; headache, coldness of the extremities and constipation; insane impulse.

Illus. 192.—Mrs. F., æt. 24, mother of one child; has always been of a retiring and melancholic disposition, yet very affectionate; last year her mother died, since which she has been very gloomy and depressed; she is naturally very timid, and always had to send for some one to scare away a cow that might happen to be in her path, or to kill a chicken; recently she has become very bold and irritable, and her pet dog having playfully jumped upon her lap, she seized a stick and killed it, since which she has been constantly haunted with a desire to kill her child. She knows it is wrong to harbor such a thought for a moment, and has several times placed the child in its cradle and fled to her mother, crying and wringing her hands, in consequence of the sudden and overpowering character of the impulse. Her mother, who is very religious, generally reads her a chapter out of the Bible, prays with her, and after lecturing her upon the sin of entertaining any such

thoughts, sends her back to her home calm and apparently in her right mind. A few weeks ago she ceased rocking and singing to the child, and upon its crying, suddenly seized it and dashed it upon the hearth, breaking one of its arms. She then ran into the wood-shed to procure the axe, with the view of killing it, but suddenly changing her mind, she dashed off to her mother, weeping and moaning as usual. Her mother, on finding to what length she had gone in carrying out her murderous idea, consulted me as to what had best be done with her. I advised her to take her to her own home, to take her child from her and give it to a wet nurse to be cared for, not letting the mother see it except in her presence, and to place the mother under medical treatment. This was done. *Ignatia*¹², a dose three times a day. What with the removal of the child, the occupation of the mind with new ideas, the daily rides in the open country, and the beneficial effects of the medicine, the patient soon became cheerful and happy, her features lost their thin and worn expression, the blood circulated healthily in her veins, and in less than a month she could converse calmly and rationally about her condition, expressing no longer any fear of injuring her child, and greatly mortified over what had already occurred. For prudential reasons, she was not allowed the care of the child until it was weaned, some four months subsequently, but she returned to her own home with one of her sisters as a companion, and from that day to this she has exhibited no trace of mental derangement. She does her own work, feeds and dresses her child, plays with it, and cannot bear to have it out of her sight—*Dr. Julius Ramsey*.

Stramonium—This remedy is indicated in subjects of a changeable disposition, easily excited or depressed, full of whimsical notions, disposed to undertake rash enterprises, restless, fretful and inconstant; or else melancholy, indifferent to business, weary of life, and stupid. The symptoms often present the strangest contrariety; love, hate, fear, rage, laughter, moaning, loquacity, taciturnity, occurring without order and in quick succession; no stability of mind or character; face swollen and red; eyes glistening; manner hurried and fitful.

Illus. 193.—S. S.; æt. 46, clergyman. This man, until he was over forty years of age, was most exemplary in his deportment, and an ornament to his profession. He was meek, abstemious, quiet, cheerful, sociable, sensible, fond of his home and family, devoted to his calling, and every way consistent. At the age of forty-one, after a protracted series of meetings in which he took part, and which resulted in several accessions to his church, his conduct suddenly changed. He became fretful and low spirited; often expressed himself as weary of life, secluded himself in his study, and could hardly be induced to see his most intimate friends and parishioners. This condition lasted about four months, when he suddenly lost his melancholy mood, and became lively and cheerful again, but full of odd schemes and absurd projects. He sent a thousand or more letters to young men throughout the country, offering to educate them for the ministry, and for them to apply in person at a certain date. When the time arrived, over three hundred applicants presented themselves, and had to be temporarily provided for, to the no small annoyance and inconvenience of his family and friends. When remonstrated with for his visionary scheme, he flew into a violent rage, attacked his wife and daughter with a cane, and would undoubtedly have killed them, or done them some great bodily harm, had he not been secured. His conduct was so different from the former tenor of his life, that all who examined him were convinced of his insanity, although his reasoning was sound, and he always gave clear and distinct answers to all questions. Being the family physician, I enjoined rest, sufficient restraint to prevent mischief, exercise in the open air, cheerful companionship and conversation, and a dose twice a day of *Stramonium*³⁰. Gradual improvement took place, his mind became more tranquil, and in a few weeks he resumed his pastoral relations, and has since manifested no impropriety in his conduct.—*Dr. Abel Moore.*

SECTION II.

INTELLECTUAL DISORDERS.

CHAPTER I.

MANIA.

Mania is that form of insanity characterized by disorder of the intellect and general delirium. As it is the most common form of insanity, or rather, the form with which ordinary observers are most familiar, the terms "mania" and "insanity" are often used synonymously to signify disorder of the mind, without any very clear idea of the mental conditions denoted by them. By insanity we understand a disease of the brain in which the faculties of the mind are disturbed, so that they no longer act in a healthy or normal manner. When the disturbance is confined to the moral faculties, the disease is termed *moral insanity* (q. v.) When the intellectual faculties are involved, and thrown into a state of exaltation and perversion, so that the individual is delirious, turbulent, and unrestrained by reason, the disorder is called *mania*, from *μανία*, madness. When the intellectual derangement, instead of being general, is limited to a single object, or class of ideas, it constitutes *monomania*, as *homicidal monomania*, *religious monomania*, etc. Another distinction frequently made is founded upon the physical condition of the individual. Thus, when complicated with epilepsy, it is called *epileptic mania*; when associated with parturition, *puerperal mania*, etc.

Symptoms.—In acute mania, just previous to the full de-

velopment of the disease, the patient's thoughts and feelings are observed to be exaggerated. This exaltation is at first only occasional, but shortly it becomes more and more manifest; those objects which were formerly regarded with a quiet affection being treated with the most extravagant fondness, while those that simply caused dissatisfaction, are regarded with extreme displeasure and anger. As the excitement increases, the individual becomes more and more restless and impulsive, hastily and causelessly abandoning his employments, wandering from one thing to another, and never quiet. The patient's unnatural appearance and demeanor now begin to attract attention. At times he appears greatly excited, and his eyes, which are often more or less injected, have a strange, wild expression about them. He is no longer like himself. He neglects his family and business, loses his memory, has frequent fits of passion, and suffers from headache and sleeplessness. At last he becomes delirious. Sometimes the delirium, instead of being constant, alternates with reason, but the commission of absurd and extravagant acts is frequent. The delirium increases, becomes general, and actual raving occurs. The madness is now extreme. The patient's movements, which are angry, violent and destructive, are often accompanied with shouting, singing, jabbering and howling. During these attacks of wild frenzy, the head is hot, and the eyes injected, brilliant and fixed. At the same time, the general circulation, contrary to what might be expected, is not perceptibly increased; for out of two hundred and twenty-two cases examined by Jacobi, only twenty-three presented any evidence of fever, and in these it was attributable to hectic and other causes not connected with mania. Indeed, the pulse seldom affords any guidance in this disorder. This, however, does not appear to be the case with the temperature. On this point, Dr. S. R. Beckwith says: "While I have not observed long enough to attain a well-established fact, each case of mania in our hospital has an aggravation of maniacal symptoms just in proportion to the rise of temperature, and as it falls the mental symptoms are less. The thermometer does more; it, like a barometer, indicates an approaching storm or foretells fair weather. A

patient with acute mania walks about the room quietly, giving no disturbance to anyone; his temperature is found rising, and unless he is controlled by treatment, a period of violence is certain to ensue, and will continue as long as the temperature remains high." In consequence of his incessant and violent physical exertions, loss of sleep and frequent rejection of food, the maniac soon becomes weak and emaciated, his cheeks and eyes hollow, the skin discolored, the blood deficient in fibrine, and, if allowed to progress and become chronic, may terminate in epilepsy, dementia and paralysis. The symptoms that precede and accompany paralysis of the insane, have already been given under that head. Those peculiar to puerperal mania, which begins with restlessness, insomnia and severe pain in the head, are, either a diminution or arrest of the lacteal secretion, suppression of the lochial discharge, fever, thickly furred tongue, hot dry skin, full quick pulse, profound debility (especially in patients who have suffered from excessive hemorrhage), the most intense delirium and outrageous paroxysms of frenzy and madness. From this it will be seen that the chief distinction between puerperal and other forms of mania, is in the fever that attends the puerperal form. This, however, is not the most common variety of the disease. Most cases of puerperal mania are accompanied by only a very moderate disturbance of the circulation, so that there is often no greater difference between them in this respect, than there is in the mental symptoms, of which Dr. Gooch has remarked, that "if a physician was taken into the chamber of a patient whose mind had become deranged from lying-in or nursing, he could not tell from the mere condition of the mind that the disease had originated in these causes." The febrile cases are those which generally occur soon after child-birth, and are cases of true mania; while the disorder which affects women exhausted by suckling, is generally much milder, and is most commonly associated with melancholy, or that state of mental depression observed in women whose strength is reduced by anæmia, hemorrhage, etc.

Causes.—The principal predisposing cause of mania is heredity. The tendency to the disease is undoubtedly derived

in most cases, from the patient's ancestors. The vicious and criminal classes inevitably propagate their kind, producing offspring of similar inclinations. On this point, Dr. Butler, Asst. Phys. N. Y. State Hom. Insane Asylum, says: "That this is one of the most potent causes of mental disease cannot be questioned. Statistics of every age and every country show the same universal law. Although varying in their opinions, as to its importance, still every author upon this subject, from the earliest times to the present, has agreed in ascribing to heredity, a large proportion of the cases which have come under his knowledge. That perfectly accurate statistics cannot be obtained, is evident from the too frequent ignorance of ancestral history, or a desire to conceal the truth when known. A very great difference evidently exists in the prevalency of this cause in different countries, as shown by our most reliable authorities."

The Germans assign by far the largest number to this cause. Dr. E. T. Wilkins, in his "Report of Insanity and Insane Asylums," says: "Dr. Kœppé, the intelligent director and physician-in-chief, of the celebrated asylum at Halle, in Prussian Saxony, informed us that eighty per cent. of those committed to his asylum were from hereditary causes; and that this was in accord with the experience of the superintendents of other asylums in Germany."

Although as much labor has not been given to the collection of statistics in the United States, yet there is no doubt, that a large proportion of the cases of insanity here are due to inheritance, as the exciting or predisposing cause. In the tabulated reports, for over thirty years, of the New York State Asylum at Utica, of over ten thousand cases, we find over thirty per cent. of the cases due to this cause. Upon this subject, Dr. Brigham, the first superintendent of this asylum, says: "There is nothing in connection with the study of insanity more deserving of attention, than the tendency of this disease to be transmitted to offspring; the fact is most unquestionable, that it has more influence in producing that disease than all other causes combined." Dr. Gray, at present and for many years, superintendent of the same institution, adheres to the same

opinion. He says: "In reality, there is little doubt, that inherited disease is much the most powerful agent in the production of insanity that can be assigned. This transmission is traceable in one-third of all the cases admitted, and in still other cases the type and character of the mental disease are such as to impress the conviction that it is inherited." Although the per cent. assigned by some American writers is much lower, we find that in most cases they have regarded heredity as a predisposing cause, mentioning in their reports only proximate causes. The testimony of such authorities as Drs. Brigham and Gray, founded upon so many cases, can be relied upon as a fair statement of the general heredity of insanity in the United States.

The peculiar tenacity with which any mental unsoundness seems to cling to certain families, is indeed wonderful. We find children, through two and three generations, suffering under the same burden as their fathers, whether subject to any exciting cause or not, their insanity seeming to be merely the brand of the race to which they belong. In almost every work upon insanity, we find cited many remarkable cases of this kind. The following are taken from the Case Book of the N. Y. State Hom. Asylum for the Insane:

Mr. H. H., for past four years insane, alternating between melancholia and mania; mother died in an asylum; only brother committed suicide.

Mrs. Susan S., melancholia. Mother suffered from mania; died insane; maternal aunt insane; father and sister committed suicide.

Mrs. E. H., mania. Father, brother, sister, uncle and cousin, insane.

Charles B., epileptic. Mother, grandfather, great-grandfather, maternal uncle, and several cousins, insane.

Charles B., deaf mute, melancholia. Mother and her sister now inmates of the asylum; two other maternal aunts have been insane; two sisters and one brother, deaf mutes; cousin on father's side, deaf mute.

The cases cited are fair samples of hundreds, which could easily be collected, in whom the insane neurosis, transmitted

through a smaller or greater number of ancestors, has in them reached its culmination.

The effect of this unfortunate inheritance falls not upon the insane alone. Hours and days of agony, weeks and months of suffering and embarrassment, years of real and imaginary ills, reveal its influence in the sufferers from neuralgia, chorea and hysteria.

Nor does this taint confine itself to those ordinarily recognized as diseased. Destroying in one his reason; in another of the same family, leaving his senses intact, it blunts and perverts his moral nature, and plunges him into a course of sin and crime. Those who have our criminal classes in charge, and have made their lives and history a study, are becoming more and more convinced that many of their crimes are crimes of inheritance. Descending from epileptic or insane, in a large proportion of cases, they bear in their general appearance marks of their criminal proclivities. Maudsley, speaking of this class, says: "Crime is a sort of outlet in which their unsound tendencies are discharged; they would go mad if they were not criminals, and they do not go mad because they are criminals. Wandering over the country a pest to law-abiding citizens, filling our jails, work-houses, and prisons through their lives, they are continually doing penance for their inherited propensities."

The liability to development of inherited disease is greatest at the period of puberty and adolescence. On this subject Dr. T. S. Coulston* remarks: "The period of greatest danger of insanity in Scotland is that of adolescence. The ratio of insane to sane, at different ages, is as follows: twenty years and under, one to twenty-one thousand nine hundred; over twenty, one to three hundred and four. The period of greatest frequency is from thirty-five to fifty-five. 'Speaking generally, therefore, insanity in its worst forms is not a disease of youth or puberty, but of middle and advanced life.' Yet the figures show that any predisposition to insanity is apt to show itself about the time of puberty." This statement is confirmed by

* *Edinburgh Med. Jour.*, July, 1880.

the observations of Althaus, who found that the mortality* from insanity in England and Wales, in 1847, began to increase at puberty, from which period it steadily and rapidly advanced until the age of thirty-five to forty, when it began to fluctuate, but did not reach its highest points until the ages of fifty and sixty-five, after which it rapidly declined.

Sex does not appear to have much influence in causing the disease. The prevalent opinion that there are more insane females than males, is controverted by the fact, that during the year 1878, in forty-eight asylums in this country and Canada, there were admitted fourteen thousand, eight hundred and eighty-nine males and thirteen thousand, two hundred and fifty-two females.†

The disease can in some cases be traced to moral, and in others to physical causes. Of the former, the most frequent are: sudden fright, immoderate grief, disappointed love, intense religious excitement, blighted ambition, pecuniary losses, and excessive intellectual exertion. Among the physical causes, the most common are: masturbation, sexual excesses, the abuse of tobacco, alcohol, opium, chloral, bromide of potassium, mercury and other drugs, the retrocession of erysipelas, scarlatina and other exanthemata, epilepsy, sunstroke, and wounds, tumors, abscesses, adhesions, cicatrices and traumatic injuries of the head. The influence of the latter in producing insanity, is shown by the fact that Dr. Kœppé extirpated the cicatrix in seven cases, where the patients were inmates of the lunatic asylum, and amelioration followed in all cases, a perfect cure in most of them.‡

Pathology.—Under the head of “paralysis of the insane,” we have given the substance of all that is definitely known regarding the pathology of insanity. In these cases we have seen that, in addition to the above-mentioned physical changes in the brain, there is degeneration of the cerebral nerve-cells,

* This authority does not give the ratio of insane to sane, at different ages, but as the *mortality* from insanity generally correspond with the *prevalence* of the disease, the ratios at different ages must be about the same.

† Dr. H. S. Talcott, Med. Direc. N. Y. State Hom. Ins. Asyl.

‡ *Deutsch. Arch. f. Med.* XIV. B.

producing condensation and atrophy of the grey substance, increased weight, diminished volume, and chronic inflammation with softening. In other cases, amounting only to about nine per cent. of the whole number, no lesion of the brain can be discovered. In those instances in which no physical changes can be detected, the symptoms may be accounted for in one of three ways: first, by cerebral irritation; second, by cerebral excitement; and, third, by cerebral depression. *Cerebral irritation* may result from a variety of causes, such as anæmia, general debility, sexual abuses, dissipation, anxiety, worry, excessive mental exertion, overwork, loss of sleep, disorder of the digestive, hepatic or uterine organs, etc. This condition is believed to be the prevailing one in those cases in which no physical alterations exist. The majority of cases are associated with anæmia and general debility, and although sleeplessness, which generally results from an increased flow of blood to the brain, is one of the most constant symptoms of the disorder, it may be readily accounted for by *vaso-motor paresis*, the result of debility and exhaustion. But if simple irritation will produce disorder of the mind, we can easily understand how *cerebral excitement*, which is induced in some cases by the same causes and in others by active congestion and inflammation, may give rise to similar disturbances. That cerebral hyperæmia and inflammation will produce mental excitement, insomnia and delirium, is well known. To cause monomania, it is only necessary for the irritation, congestion or inflammation to be limited to a single organ of the brain, instead of involving the whole structure. Moreover, as increased functional activity in any organ or part causes an increased flow of blood to that part, should the action be violent and long-continued it will give rise to hyperæmia, and in many cases to inflammation. In this way, doubtless, insanity is often induced, especially in those predisposed to the disease. The third condition that favors mental derangement, is *cerebral depression*. This condition may result from the same or similar, but more powerfully acting agencies, to those we have enumerated as inducing cerebral irritation, more especially, anæmia, general debility, the depressing emotions, venous con-

gestion, the abuse of alcohol, chloral, tobacco, opium and other narcotic poisons. From this view of the subject, we conclude that insanity is in all cases an actual morbid condition of the nervous centre, or of a particular portion of it, and that the mental disturbance is the result of that morbid state, whether any perceptible anatomical lesions exist in the brain or not. At least, it is not too much to assert, that physical alterations probably do exist in all cases, as mal-functionation of the faculties implies as much. But these material alterations may be, and no doubt frequently are, merely molecular, and result from disturbances in the physiological process of nutrition. In order to become pathological, they must of course pass the physiological limit, whatever that may be; and that the process of regeneration is thus affected in these cases, we have no other means of knowing, than by the psychical manifestations themselves. Insanity may perhaps be fully developed by a mere functional disturbance of the parts, but it is safe to assume, what, indeed, may be regarded as an established law in all vital processes, that excess or deficiency of function, if permanent, is conclusive evidence of organic change. Hence, the apparent absence of lesions, in many cases of insanity, is no proof that it is not due to physical causes. Even with our inadequate means of demonstration, Balfour, who analyzed seven hundred post-mortems, found tissue alterations in ninety-one per cent. of his cases. These alterations consisted, as before stated, in thickening, opacity, adhesion, effusion and softening—all results of inflammation. It may therefore, we think, be laid down as an established fact, that insanity is an actual morbid condition of the brain itself, and not a mere functional disturbance without physical disease, as it was formerly regarded.

Diagnosis.—In ordinary cases of mania, the characteristic features of the disease are sufficiently well-marked to enable one at a glance to recognize its true nature; but there are many instances of mental alienation, occupying, as it were, the borderland between sanity and insanity, in which the diagnosis is not so easily determined. In all doubtful cases, we should make a thorough examination of the patient, paying particular attention to the following points: 1st, as to the presence or ab-

sence of *hallucination*, *illusion* or *delusion*. In the first of these the perceptions are false and have no material basis; in the second, while the impressions themselves are real, the perception or estimate of them is distorted, the intelligence being misled as to their real nature; and in the third, the impressions are not only false, but are based on false premises. 2d, as to the presence or absence of *an adequate motive*. The motive may be true or false—that is, it may or it may not have a material basis—but in either case, if the intelligence is affected to such an extent as to constitute insanity, there will probably be a want of correspondence between the motive and the act. The reasoning powers being perverted, the reasoning itself is illogical, and not in accordance with that of the normal mind. 3d, as to the presence or absence of *volition*. In almost every case of insanity, the will-power is more or less impaired. It is evident that, if perception and reason are both defective, volition must be also, since our voluntary acts are based upon them. We obtain our knowledge of objects or events through the faculty of perception, we exercise our intellectual faculties in reasoning upon them, and then we act upon them through the operation of the will. Hence, if the former is imperfect, the latter, which is the ultimate step in the mental process, must also be imperfect. There are many other facts and circumstances which bear upon the subject, but these are the most important, and all-sufficient to determine the diagnosis.

Prognosis.—We may say, in a general way, that, if taken in time, the great majority of cases of insanity are curable. This is especially the case with acute mania when simple and uncomplicated. The probable result in any particular case depends on the following circumstances: 1st, *heredity*. If the patient has inherited the disease, the chances of recovery are much less than they would be if the disease was altogether acquired. Nevertheless, such patients sometimes recover, and even remain well afterwards, but they are always liable to relapse. 2d, *structural changes*. The prognosis is more influenced by the condition of the cerebral tissue, than by any other circumstance. It is not always possible, however, to determine with certainty when structural lesions have occurred, but their

existence may always be inferred when symptoms of inflammation exist, and also in chronic cases. 3d, *duration*. The matter of time is always an important element in these cases, for the reason that structural alterations frequently depend upon it. Statistics show that the great majority of recoveries take place during the first year, and that comparatively few occur after that period. 4th, *causes*. Psychical causes are supposed to be more serious in their consequences than physical ones; nevertheless, the prognosis is very unfavorable when the disease results from onanism, sexual excesses, intemperance, injuries of the brain, anæmia, or general debility. It is also very bad when complicated with epilepsy or tuberculosis. Puerperal mania, attended with fever, is almost always fatal; but when not thus complicated the subjects of it generally recover. As in other diseases, whenever the exciting or efficient cause can be removed, the mental disturbance will be likely to subside, provided the habits of the patient are not such as to prolong the malady.

Treatment.—The first question we have to consider under this head is, whether the patient should be sent to an asylum for treatment, or whether he would stand a better chance for recovery if the treatment were conducted at home. In order to determine this question, we must take into consideration the manner in which our asylums are at present managed. On this subject, Dr. Samuel Worcester, in a paper read before the Massachusetts Homœopathic Medical Society, says: "In judging as to the merits of the present system of asylum management, we should ascertain how far it succeeds in attaining its main objects, viz.: curing speedily and pleasantly such cases as are curable; and guarding comfortably and humanely the incurable chronic insane. We also have a right to demand that the proportion of those cured shall increase as we advance in civilization, and in our knowledge of the curative effects of medicine. But on applying this test, what do we find? Does any larger proportion of the insane permanently recover than formerly? The mean average of recoveries and deaths in the State Hospitals of New England, for the ten years ending in 1876, is as follows: percentage of recoveries 32.14;

of deaths, 10.25. A very extended and careful analysis of asylum statistics, made by Dr. Edw. Jarvis some years ago, shows that of every one hundred patients treated, forty-two recover, eight die, and the remaining fifty continue in a state of mental invalidism. This, however, presents no better results than were attained years before, when the modern system first came in vogue. Dr. Thurman gives a table showing the history of two hundred and twenty-four persons who died at, or after discharge from, the New York Retreat, from 1796 to 1840, and he says: "In round numbers, then, of ten persons attacked by insanity, five recover, and five die sooner or later during the attack. Of the five who recover, not more than two remain well during the rest of their lives, the other three sustain subsequent attacks, during which at least two of them die." We are justified, then, in saying, that, judged by the results, the progress in modern medical science has not been followed by a corresponding improvement in treating the insane; and indeed it is questionable whether the present percentage of lasting cures is as great as during the first ten or twenty years of the "humane" system; when our asylums were managed by such men as Hahnemann, in Germany, Conolly, Gardner Hill and Tuke, in England, Esquirol and Pinel, in France, and Bell, Fowerden, Woodward, Earle, Ray and Kirkbride, in this country.

It is commonly supposed that patients in an asylum receive some special medical and moral treatment, which the superintendent is peculiarly qualified to give by virtue of his special training; and perhaps you picture him making his rounds as does the visiting staff in other hospitals, carefully inquiring and examining into the physical and mental symptoms peculiar to each case, and directing the appropriate medical and moral treatment. Let us see what Dr. Earle says upon this point, in his report of the Northampton Hospital, where he had four hundred patients under the care of himself and one assistant medical officer. "At eight o'clock in summer, and nine in winter, the regular daily medical visit is begun. The superintendent and assistant physician make it in company, three, sometimes four, times in the week, the latter making it

alone the other days. It is expected that in nearly all the halls, the patients will be collected as much as possible into one part of the hall, generally the 'bay'; the object of this is two-fold; first discipline, from the practice of self-control by the patients; and secondly the saving of time and steps to the physician; for, even with this grouping, the visit generally occupies two hours, often two hours and a half, and is more fatiguing than a walk of six miles." "Fortunate are the physicians if they have been permitted to complete their visit undisturbed by calls to other duty, for not unfrequently one of them is summoned away by a want in some other department, or by some persons on a visit to a relative among the patients." So frequent are such interruptions, that I might safely say, that in some of the large hospitals there are wards not visited, and patients not seen, by the superintendent for days and even weeks at a time; and all the information he has of such patients he obtains from the supervising attendants or the assistant physicians. Is it not very evident that the knowledge of the patient, upon which the superintendent is supposed to base his treatment, must be very superficial and defective. Let us now quote from their reports, and show what the medical treatment consists in, and I will again quote Dr. Earle, who is one of the most distinguished of American alienists. He says: "The medical treatment is governed, as in all other diseases, by the general condition or the special symptoms in each individual case, the primary object in view being to restore the physical health to its normal standard, in the hope that the body being sound, the manifestations of the mind will be so. Insanity at the present time, whatever it might have been in the past, is a disease which has its origin in debility, or an exhaustion of brain power and nervous energy; hence stimulants and tonics are necessary to a large extent in its treatment. It is often accompanied by excitement and loss of sleep, and frequently sedatives, anti-spasmodics and soporifics are of marked utility. In its acute forms the liver is very frequently, even, perhaps, in a large majority of cases, implicated, requiring the use of chologagues. Not unfrequently there is a depraved and perverted condition of the

system generally, which can only be removed by the administration of alteratives. This brief epitome comprehends nearly the whole of the therapeutics of insanity."

The so-called moral treatment is no better. Dr. Earle truly says: "The insane generally act from the same motives, and are governed by the same agencies and influences as other men. The patients should be treated as far as possible as if they were not insane." But how are they treated? "They are marshalled out and ordered in at exact hours; they are compelled, forced, confined, locked up, tied up like refractory sheep, at a signal of disobedience, and their life is that of the inmates of a House of Correction or of a Reform school. And yet many of them are gentlemen of education, refinement, position; and ladies who have perhaps adorned the most fastidious society. Many of them still retain the mark, bearing and tone of their character and positions. They have, in the overthrow of their ordinary faculties, lost none of their native dignity or grace. They are here as in their former conditions, beloved and respected by many, yet what allowance is made for them by the administration of this 'moral treatment?' The same fiat that goes forth to bind the reins tighter for the rebellious or riotous patient, the same watch that keeps close upon the movements of the sly and cunning evader, are not varied to suit this or that shade of the disease, but the rule falls alike upon all. It is no respecter of persons or of types. Thus it may be imagined how much this class of patients must suffer, how dearly they must pay the penalty of their vague disease. The more the patient is deprived of his senses, the less of this mental suffering he will have to endure. The more he is *himself*, the more does self suffer."*

With reference to home treatment and its comparative value, the following views, from the ready pen of Dr. E. R. Eggleston, are worthy of consideration. The importance of the subject must be our apology for making such long quotations as are contained in this and the preceding extracts. "If I express my belief that a very large majority of cases are curable, and

* *Behind the Bars.*

that the cure can be accomplished at the home of the patient, more surely and speedily than at any asylum, public or private, it is at once seen that insanity comes within the province of the humblest practitioner, and likewise, if it is true, forcibly brings home to him his responsibility. Whose eyes should be keener to mark its beginnings, whose tongue more ready to warn of the approaching danger, whose brain better furnished to supply the means to avert the calamity, whose heart more open to the confidence of the enfeebled mind, than the family physician? How is the oversight of a 'superintendent' who, in these days, is degraded to a mere office hunter, to be superior? What means of diagnosis or treatment are at the command of a 'physician-in-charge,' that are not at our disposal also? In what respects is the management of these unfortunates by 'overseers,' 'matrons,' 'keepers,' etc., so superior to that which might be carried out by fathers, mothers, husbands or wives? And yet we advise, nay urge, that tenderly nurtured women, who, many of them, are keenly sensitive to their calamity, shall be thrown into a prison, professedly for treatment, where the best boasted curative means are enforced restraint and fear of punishment! Who dares to deny his responsibility?

It is, then, on account of the negligence or ignorance of physicians that cases are allowed to progress from small beginnings to the stage of confirmation, when the fact is recognized that the person is certainly crazy, and something must be done. Here it is that our responsibility for public opinion is most manifest. Instead of directing the current of sentiment with all the strength of a large and humane mind, we too readily drift with the vicious stream that long habit has set in motion. In a given case, perhaps friends A and B are consulted—perhaps it is Dr. C—really it makes no difference which, for the advice is precisely the same: "send her off!" By all means, send her off, because, weak woman as she is, there are monstrous possibilities for danger in her. Stout-hearted, protecting men propose it; trembling, tearful, sympathizing women urge it; awe-stricken, open-eyed children echo it; the doctor gravely bows his head to sanction it—send her off! From the view of the patient there is nothing to consider. Her wishes are but trifles; her dreads but bug-bears; her plead-

ings but empty vamping; her prayers and tears but maniacal rage. Sensible of her misfortune, deploring it, struggling against it, no strong arm is extended to sustain her, but instead, relations, friends and doctor conspire; she is victimized by a pleasure-trip and left within the walls of an asylum to rage and rave, curse God and man—as well she may! Such humane methods are the beginning of the process of cure; months and years of fear, deprivation and maltreatment at the hands of brutal keepers is a continuation of it; and finally, a cage in a retreat for incurables is the end of it. The relations having performed a solemn duty, mourn as for the dead; the friends add one more to the uncanny legends of the neighborhood; the doctor adds a plume for having treated a case of insanity—but his tell-tale case-book, which in another case may describe with labored particularity a diminutive ulcer, bears opposite this unfortunate's name the comprehensive description, "crazy." Barbarous, is the only proper designation for such treatment, and among barbarians should it only be tolerated.*

This, perhaps, is a little too high-colored, at least so far as some of our asylums are concerned, but yet it cannot be denied that private treatment is best for the patient whenever practicable. Unfortunately, many cases occur in families in which poverty, or some other insuperable obstacle, will always prevent the carrying out of such measures, however necessary they may be in a medical or humanitarian point of view; but we have no hesitation in expressing the conviction, founded upon personal observation and experience, that a much larger percentage of cures can be made at home, and especially under homœopathic treatment, than *is* made even in our best conducted asylums. And yet insane asylums are a necessity, and would be, if rightly managed, a very great blessing, both to the community at large, and to them for whose safety and well-being they are designed. It is to be hoped that the time is not far distant when public opinion will demand such a reform in the management of this class of our public institutions, as will secure to their unfortunate inmates the best medical, moral and hygienic treatment.

* *"Insanity; its Medico-Social Relations."*

Private Treatment.—By private treatment we do not mean complete seclusion, such as asylums afford, neither do we mean home treatment, in the sense of being treated in one's own family, surrounded by children and servants, and where no efficient restraint can well be exercised; but we mean that the patient should be removed from his own house, to one where the surroundings are such as to lead him to forget his malady, or at least to so occupy his mind by new objects as to divert it from the old, and not to call up, by sight or otherwise, any of those objects and influences which occasioned, or are liable to aggravate his disorder. Moreover, such removal will in many cases act beneficially, by rendering the patient more disposed to submit to the authority of his attendant, than would be the case if he remained where he was accustomed to have his own way. His attendant should be a person of great self-control, discretion, kindness and watchfulness. His watchfulness, while unremitting, should not be obtrusive, but on the contrary, should be exercised in such a manner as not to attract the patient's attention. At the same time, he should never be negligent of his duty, remembering that his patient's welfare is entrusted entirely to his keeping. Moral rather than physical restraint should be employed, the patient being at all times encouraged to exercise his own self-control. In case physical force needs to be employed, in order to secure the patient's safety, it should be exercised with great firmness and discretion, and with as little violence as may be needed to secure the desired end. The following mode of managing the mental excitement of the insane we regard as highly judicious, and far preferable to that ordinarily employed: "Dr. S. Rabon discards all narcotics, especially morphine and chloral. Just as every febrile affection demands perfect rest in bed, so he considers such a rest of the maniac a *sine quo non*. Maniacs who, when up, tear everything to pieces and become dangerous, are soon quieted down in their beds; the patients become used to their situation, and there was never any ill effect from the horizontal position. Some patients had to be kept in bed for over a year, and they were not the worse for it. Where sleeplessness prevails, a tepid bath for about half an hour in

the evening is to be recommended, with cold compresses to the head, whenever there is any congestion to that part. A cold douche does injury, and might only exceptionally be used as a means of punishment. In many cases, maniacs are brought into the asylum with a small, weak pulse and a miserable state of health. Here a strengthening diet and a glass of good wine sometimes works wonders. Maniacs who destroy everything and run about stark naked, are brought into an isolated room, where there is plenty of sea-weed kept for their use, and they are allowed to treat it ad libitum, and may sleep on it at night, for even if they should feel cold, they can roll themselves into it. *Good food and plenty of it* is the great secret of successful treatment. Any patient who is able and willing to work, ought to work for his own benefit, and as reward there are to be frequent occasions, like concerts, theatricals, dances, which reunite the lunatic with the outer world.*

All depressing agencies, of whatever nature, should be studiously avoided. The cerebral irritation, congestion and inflammation of maniacs are all associated with, and in many cases are due to, an anæmic or debilitated state of the system, and instead of such patients being benefited by a sedative mode of treatment, such as low diet, the cold bath and narcotics, they require the very opposite. A threatened attack of mania may frequently be prevented by the administration of a warm bath, stimulants, and a generous diet. For the same reason, everything about the patient should be made as cheerful as the circumstances of the case will admit. The room that he ordinarily occupies should be light and well ventilated, and ornamented with pictures, flowers, and everything calculated to gratify the innocent tastes of the patient. When he has so far recovered his health as to admit of employment and recreation, he should be provided with such as will occupy both his hands and his mind, so that the latter will not react upon itself. The mind should also be strengthened, by gradually directing the attention of the patient to former objects and associations. This, however, must be done gradually and

* *Berl. Klin. Wechschrift*, June, 1876.

with great caution, as the mind remains weak for a considerable period after apparent recovery has taken place, and an untimely allusion, or any sudden shock, may be sufficient to arrest recovery.

Medical Treatment.—We are indebted chiefly to Dr. N. B. Delamater for the following excellent *resumé* of the therapeutics of mania. A few clinical cases will be interspersed, by way of illustration.

1. Belladonna, Cantharis, Hyoscyamus, Stramonium, Veratrum alb.

2. Agaricus mus., Arsenicum, Cannabis, Crocus, Cuprum acet., Kali, Lycopodium, Lachesis, Mercurius, Phosphorus, Secale corn.

3. Aconite, Anacardium, Camphor, Conium, Moschus, Natrum, Nitric acid, Nux vom., Platina, Plumbum, Tartar emet. The first set of these remedies is most useful in *acute mania*. Most of the second and third class are suitable in *chronic mania*.

ANTAGONISTIC STATES OF THE MIND.

Anacardium.—When the patient seems to have two opposite wills. Is inclined to laugh when he ought to be serious, and does not incline to laugh when tempted by ludicrous things.

Sepia.—When he imagines things he does not want to imagine; uses wrong expressions, knowing them to be wrong; proposes to himself things contrary to his intentions; is in contradiction with himself; has paroxysms of laughter and weeping in alternation, without either resulting from a corresponding frame of mind.

Phosphorus.—When the patient laughs against his own inclination, which is very sad.

Capsicum ann. } —When he is merry, but nevertheless in-
Staphysagria. } clines to get angry and be quarrelsome.

ANTIPATHIES.

Conium.—When the patient is inclined to dislike every one who passes him; would like to lay hold of them and abuse them.

Cicuta.—When he abhors all mankind; hates their follies and seeks solitude.

Aurum.—When many persons are offensive to him.

Ammonium mur.—When there are involuntary antipathies to certain persons.

Calcareæ carb.—When there is aversion to most men.

APATHY.

Antimonium crud.—When the patient is completely apathetic; does not leave her bed; does not speak; desires neither to eat or drink, but eats readily what is offered and feels hungry.

Argentum nit.—When there is apathy with great debility and tremulous weakness.

GAY MANIA.

The principal remedies are:

1. Aurum, Belladonna, Crocus, Lycopodium, Platina, Opium, Stramonium, Veratrum alb.

2. Aconite, Anacardium, Cuprum met., Hyoscyamus, Lachesis, Natrum mur., Nux moschata, Phosphorus, Phosphoric acid.

Belladonna.—A merry craziness with laughing and singing; tries to compose songs, and sings merry but senseless tunes, or whistles occasionally, but refuses either to eat or drink, or sings or hums different airs, or smiles a long while to himself, or is disposed to sing or whistle, with frequent bursts of laughter, or is wild and wantonly merry, with inclination to quarrel without cause, or will tear off clothes, run out into the street, partially or wholly naked, gesticulating in a strange manner, crying, laughing, muttering, and demanding foolish things.

Cicuta.—When heated while asleep, wakes, jumps out of bed, dances, and does all sorts of foolish things, clasps her hands, etc.

Cuprum.—Sings merry songs.

Hyoscyamus.—Dances, laughs in an absent manner, makes ridiculous gesticulations like a clown, and performs funny tricks like a monkey.

Opium.—When the patient's mirth and bliss increase until he becomes irrational.

Stramonium.—When in ecstasy and beside himself, when filled with pleasant fancies, expresses his wishes by signs, and runs about for some days exceedingly busy with his fancies and quite cheerful; or when he dances, gesticulates, laughs and sings, or has paroxysms of constant talking, or breaks out into low laughter, or violent rage.

Illus. 194.—Mrs. C. was delivered, June 23d, of a dead child, after a protracted and very difficult labor. She had shown signs of mental weakness before and during labor, and at its close was extremely violent. Chloral and morphine were prescribed by the allopathic physician in charge of the case. When I first saw her, June 27th, she was suffering from *acute mania*, and exhibited the following symptoms: She was sitting on her knees in bed, moving arms, hands, feet and body in every direction, in the quick, nervous manner so characteristic of lunatics. Accompanying this was a constant stream of talk, interspersed with an occasional maniacal yell, while her eyes were wide open, with pupils dilated. There was no fever, the temperature being normal, while the pulse was slightly accelerated on account of the intense excitement. There was no abdominal tenderness, and the discharge was normal. She was extremely violent almost all of the time, and obtained scarcely any sleep previous to my attendance, although under the influence of powerful narcotics all the time. Her appetite was good, bowels regular, and the urinary secretion normal in all respects. The predisposing cause of the insanity existed undoubtedly prior to labor. I judge so from the fact that she had a great deal of domestic trouble, and there was an hereditary tendency to such a condition. The exciting cause was the nervous shock depending upon labor, for she informs me positively that she remembers nothing from the time she felt the first labor pain, until she completely recovered her reason, July 10th. The treatment was *Stramonium* 2x, given *p. r. n.* Improvement began at once, and on July 10th she was perfectly sane, and has remained so ever since.—*Dr. F. F. Casseday.*

MANIA WITH FEAR.

Aconite.—Acute mania attended with fear, despondency and apprehensions of future calamity; anxious lamentations, accompanied by disheartening apprehensions; anxiety attended with heat of the face and head, palpitation of the heart, and coldness of the extremities; apprehensions of approaching death.

Illus. 195.—Mrs. E., æt. about 30, actress, became restless, depressed, and possessed by delusions. Some three months before, while nursing a very sick child of her brother's, it fell from the cradle and subsequently died. When mania appeared, her most constant delusion was that "she had killed some one, and the officers of the law were after her." She also said she was very wicked and would die in a few hours; wanted to see her friends first. She was constantly trying to cry, but the lachrymal font was dry—a symptom peculiar to the insane. On arrival, I found her with hot head and face, cold hands, pulse about 112, and the above delusions very active; little appetite, costive, imploring protection from something dreadful, she knew not what, and under forcible restraint by her friends. She had the appearance of being terribly frightened. Prescribed *Veratrum alb.*³⁰ Called early in the afternoon and found no improvement. Husband insisted upon something being given to cause sleep, as she had slept very little for two weeks. R. *Opium*²⁰, with a request to call at office and get some tincture if she did not sleep by 8 P.M. Heard no more from the patient until calling the next day at noon. Found she had slept nearly all night. But the delusions were the same as before. On account of the fear she had that some calamity would overtake her, I prescribed *Aconite*^{1m}. Called the next day, and found that after two powders had been taken, the gloomy forebodings began to disappear; and in a few hours she became rational, calm, self-possessed, and laughter and good cheer took the place of moaning. During the night she was awakened by the ringing of the fire-bells, and was subject to the delusions again for a few hours, but in the morning was quite rational, and was able to shed tears for the first time in two weeks. More than a month has since elapsed, and there has been no tendency to relapse.—*Dr. E. H. Peck.*

MANIA WITH FURY.

Belladonna. } —Acute mania attended with congestion of the
Gelsemium. } brain; head hot, face flushed, eyes red and protruding, extremities cold, or cold and hot alternately, wild demeanor.

Illus. 196.—Mrs. D., æt. 27; has for years been subject to severe spells of rush of blood to the head, with temporary insanity. Very wild and entirely uncontrollable, except by force at the time. Her father died insane. She has been subject to profuse blood-letting by allopathic family physician, which would immediately relieve the congestion, but after a longer or shorter time would return again. She applied to me with face flushed, head hot, and every indication of severe spell coming on, and demanded to be bled for relief, but I persuaded her to try a few powders first, and prescribed *Belladonna*², which in a very short time removed the congestion, and for the first time at such attacks and much to her astonishment she escaped her insane fit. Since then she invariably takes *Bellad.* on the least return of threatening head symptoms, and has entirely escaped her insane spells for several years.—*Dr. W. M. Haines.*

Illus. 197.—Miss M., æt. 16, after suffering for several weeks with melancholia, suddenly developed acute mania. After severe allopathic treatment, under which she grew worse, she had paroxysms of frenzy. Eyes red, protruding and ghastly; hair dishevelled and wild demeanor; talking and singing alternately; hands, feet and head, alternately hot and cold; tongue much coated; bowels constipated and appetite capricious. *Gelsemium* every hour cured in less than three weeks.—*Hart.*

Cuprum.—Mania attended with full quick pulse, red and inflamed eyes, wild looks, incoherent speech and rage, every paroxysm terminating in perspiration.

Opium.—Furious mania with distortion of the features, swelling of head and face, protruding and congested eyes, bluish redness and swelling of the lips, paroxysms of rage, with rolling on the floor and threats against his own relatives, whom he does not seem to recognize.

Hyoscyamus.—Alternately ludicrous, solemn or furious; dresses in some fantastic way, as in a priest's gown over his shirt with fur boots; wants to go to church in this guise in order to preach or officiate at mass, and ferociously attacks all who try to oppose him; desires to go naked.

Illus. 198.—About a year and a half ago, there was admitted to the Insane Asylum at Memphis, an Irishman, named Flaherty, a most violent and viciously disposed subject. He was as belligerent as any frequenter of "Donnybrook Fair" among his countrymen, and had succeeded in disabling two men before he was safely lodged in the Institution. He would wear no clothes, and amused himself by tearing such garments as he had, into tatters, and then binding the strips about his body, until he presented a zebra-like appearance. He became so noisy and violent, that it was found necessary to confine him in the strong room, and hamper his movements still further by means of the straight jacket. This was his condition for weeks, and he was certainly one of the most unpromising cases I ever saw. Remembering Dr. Guernsey's characteristic of *Hyoscyamus*: "the patient wants to go naked," I suggested to my colleague, Dr. Allen, Physician to the Asylum, a trial of this remedy. It was given in the 200th potency, two or three doses in as many days, and then allowed to act undisturbed. A perceptible mitigation of the symptoms took place during the first week. At the end of the second week, the patient manifested no dislike to wearing clothing, and he was allowed the range of the ward with the other patients.

He turned out to be naturally one of the mildest and quietest of men, and, in seven or eight weeks, was discharged thoroughly cured.—*Dr. Lucius Morse*

Tarantula.—Restlessness of the hands and legs, constant movement, cannot remain in one place; restlessness, great and constant heat about the epigastrium; disposition to joke and laugh and play tricks, with impulsive movements. Sudden foxlike and destructive efforts, requiring the utmost vigilance to prevent damages, followed by laughter and then apologies. All the symptoms relieved by music.

Illus. 199.—Miss M., æt. 27, a confirmed dyspeptic, while in a

highly nervous state from too close application to study, was operated upon for cataract by absorption. This was followed by great nervous depression and prostration, with occasional symptoms of mental aberration. After being treated several months for uterine disease, without mental improvement, she was placed under my care, with the following symptoms: Restless, changeable, full of wants, sleepless; violent, screams, sings, bites, and throws things, destructive. Use *Camirole* and give *Belladonna*¹⁶, one dose. Next day, no better; violent; soils the bed with urine; furious. Gave *Hyoscyamus*^{3m}, one dose. Next day, no better; sings loud and continuously, with laughter. Gave *Stramonium*¹⁶, one dose. Following day, no improvement; no sleep for five days. In addition to the above symptoms, with thirst, she would suddenly spring out of bed, breaking and destroying whatever she could get hold of. This was done so quickly that it was almost impossible, with two attendants, to restrain her, unless she was kept bound. Gave her *Tarantula*^{100m} (Swan); fifteen minutes after, she was asleep, and continued in a quiet sleep two days; then she aroused for a short time, with screaming. Gave her one dose of *Tarantula*^{70m}; soon after, sleep, with catalepsy, for three hours, after which, quiet sleep until the next day; she then aroused, was semi-conscious, and got up to void her urine and feces, which had previously been voided in bed. In the evening she recognized and kissed her mother, and then went to sleep again. She took but three more doses of the medicine, at intervals varying from three to ten days, chiefly for neuralgic symptoms, and continued to improve until, two months afterwards, her only remaining troubles were her old complaints, dyspepsia and want of vision.—*Dr. G. F. Foote.*

RELIGIOUS MANIA.

Lachesis.—Supposes himself doomed to eternal punishment.

Stramonium.—Kneels down, stretches his hands out with pious look, starts up from the least opposition with wild cries and violent gestures.

Aurum.—He imagines he is irretrievably lost, with depression of spirits, with shouts and screams.

Baryta.—He has all sorts of sad notions about future destiny, deems himself utterly lost.

Crocus.—Gloomy, sad mood, with great anxiety about the future; fickle, changeable disposition; cheerfulness, mirth, joy, sadness, despair, all follow each other in rapid succession.

Illus. 200.—Mary O., æt. 20, returned from boarding school greatly depressed in spirits, and complaining of sleeplessness and headache; her parents noticed that her naturally lively and gay disposition had undergone a complete change; she was now gloomy, and anxious about her future state, conversing much with her mother and pastor about it, stating to the latter that she expected to be finally lost. This condition of melancholia continued about eight weeks, during which there were short periods of gaiety and mirth, when her parents thought she was much better, and would soon be well; but just when their hopes were the highest she would suddenly relapse into a state of great gloom and despondency. At last a paroxysm of acute mania set in, attended with furious rage and disposition to bite. This state of excitement occurred every evening, and subsided towards morning, when there was observed to be great prostration, accompanied with a tendency to laugh. After a careful study of the case, I concluded to give *Crocus*³⁰, three doses one hour apart, then placebo. Next evening she was quiet and rational, and remained so afterwards. Insomnia and pain in the neck and occiput continued to trouble her, however, for several days, and did not disappear until I gave her a dose of *Gelsemium*³, after which she was able to resume her studies.—*Dr. James O'Leary*.

SUICIDAL MANIA.

Arsenicum.—Great indifference to life, inclination toward suicide.

Aurum.—Excessive desire for water, with melancholy, notion that he was not intended for this world; anxiety amounting to a desire to commit suicide, attended with derangement and cramps in stomach and bowels.

Illus. 201.—A woman, æt. 30, was brought to the asylum, the leading characteristic of whose insanity was desire to commit

self-destruction. She had been rescued from hanging, caught as she was in the act of throwing herself from an upper window, but had succeeded in beating and bruising herself in a most distressing manner. This patient received *Aurum* 200th, three doses, which promptly removed the suicidal mania, and though her case was of long standing, she was discharged cured, three months after her admission.—*Dr. Lucius Morse.*

Belladonna.—Distaste for life with desire for death; wishes some one to kill him; attempts to jump out of the window, alternating with paroxysms of fury.

Carbo veg.—Despair with weeping, everything seems clothed in darkest colors; inclination to suicide, with irritability, desire for death because he thinks he is most unfortunate.

Nux vomica.—Inclination to commit suicide, with palpitation of heart and great anxiety; morose and taciturn; disposed to quarrel if disturbed; desire for death, because his agony of mind allows him no repose, because present pain and misfortune seem insupportable to him.

Scpia.—Discouragement with absolute despair, attended with moroseness; distaste for life in an extreme degree, because he thinks he cannot endure his pitiable condition, and that he will be irretrievably lost if he continues to live.

Alumina.—When he sees blood or a knife, he is seized with a multitude of terrible ideas, attended with an inclination to kill himself, although he has a horror of suicide.

China.—Indicated where there is distaste for life, with melancholy, anxiety and feverish heat, which drives him to his bed, though he dreads to carry it into execution.

Mercurius sol.—Disgust for life, from want of courage to meet trials and mortification, or desire for death, from an insupportable dislike for every person and thing, even those which are most loved.

Nitric acid.—Disgust for life, although one is afraid to die, prosperous, when there is a disgust for life because the whole world seems gloomy and terrible, tears alone bring relief, and are followed by the most extreme apathy.

Platina.—Distaste for life as if one was not suited to the world as it is, attended with great agony about the heart, fear

of dying and depression of spirits. Disgust for the whole world with inclination to weep.

Pulsatilla.—Disposition to suicide, with fear of death and silent anguish; weeping mood and great depression of spirits; disgusted with everything, and yet tremulous with anguish, as if death was near.

Rhus toxicoden.—Disposition to suicide, with dread of the future and want of confidence in himself; inexpressible anguish, with restlessness, anxiety, apprehensiveness and painful uneasiness about the heart.

Staphysagria.—Desire for death from an hypochondriacal indifference to everything; disgust for life from anxiety and disgusting thoughts.

Sulphur.—Disgust for life from discouragement and sadness, and from a feeling of being exceedingly unhappy.

Zincum met.—Desponding, sad, sullen and peevish; indifferent to life, with a desire to die; he moans from chagrin, and is exceedingly low-spirited, irritable and debilitated.

CHAPTER II.

DEMENTIA.

Dementia is a term used to denote a partial or total loss of the mental faculties. In its complete form it resembles idiocy, but differs from it in the circumstance that in the latter there never has been a development of intellect, while in dementia there is a loss, more or less complete, of previous intelligence. In dementia there is a gradual decay of the mental faculties, without complication with either melancholia or mania. This definition, however, only applies to the disease as an original affection. When it succeeds mania or monomania, paroxysms of violence will occasionally occur, but these are mere surface ebullitions or transitory perturbations of a disease which has subsided. The general state of the mind is one of calmness and apathy, the result of mental imbecility; or, in the expressive language of M. Georget, it is one of forgetfulness of the past, with a total indifference as to the present and future.

Symptoms.—The disease first shows itself, as a general rule, by failure of the memory. The most familiar words and names are not only soon forgotten, but they are frequently misapplied. Remote events, which have made a deeper impression on the mind than the more recent, are frequently recalled, the patient living over again, as it were, his past experiences. Thus, he speaks of having lately participated in scenes which transpired long ago, of meeting acquaintances long since dead, and so on. There is generally no marked deficiency of ideas at this stage, but there is loss of mental power, with confusion of ideas, inaccuracy of expression, more or less hesitancy of utterance, and a gradual loss of reasoning power. Words and sentences

are misplaced and misapplied, sentences inverted, and the grammatical order constantly violated. Ideas and phrases which the patient has long been accustomed to use, may, it is true, be employed in a more or less orderly and sensible way; but the mind is incapable of reasoning in such a manner as to lead to a logical conclusion. The moral faculties undergo a similar decay. The patient exhibits little or no feeling for the joys or sorrows of others, friends are seen without emotion, his sympathies are blunted, his desires selfish and narrow, and he manifests general indifference to all but his former ruling passions, such as avarice or ambition, which to some extent may still influence his conduct. In this state the demented are capable of being employed in occupations which require little or no thought, such as sewing or knitting; and they may even write letters and sentences, but the latter will generally betray their imbecility. When not thus employed, they are quiet and inactive, taking little notice of what is going on around them, but frequently smiling or singing in an idiotic sort of way, without any apparent reason. As the disease advances, they become more and more imbecile, until, in the course of time, their minds become a perfect blank. Their mental capacity is now below that of the brute, since they are without its instincts. They remain sitting or crouching in one position hour after hour, alike insensible of their physical necessities or lack of comfort. They eat only when food is placed before them, or when fed by others; are inattentive to personal cleanliness and decency; and when spoken to, stare at the speaker in a vacant and meaningless manner. Such patients, however, are not always sombre looking, but laugh or smile in a weak, sickly way, which, like the vacant and puzzled look and lustreless eye, equally betrays the vacuity of mind. At last they sink into the state of complete amentia, in which they pass a mere vegetative existence, and present a degree of mental degradation almost surpassing belief. Standing or sitting immovable, their bodies bent forward and their eyes fixed upon the floor, never appearing to be conscious even of their own existence, they present a spectacle deeply affecting to every sensitive mind. Comparatively few reach this state of mental vacuity

without having lost the use of their limbs by paralysis, as already described under the head of "paralysis of the insane" (q. v.). The physical health of these unfortunates is often tolerably good. They sleep well, have good appetites, are often plump, and, if previously thin and emaciated, not unfrequently recover their flesh as the disease advances. Such, however, is not the case with the strength; but, as the countenance gradually loses its expression, the strength declines, muscular tremor sets in, the gait becomes uncertain and tottering, and finally gives place to the paralytic condition before mentioned.

Causes.—The predisposing and remote causes are the same as already mentioned under melancholia and mania (q. v.). Other causes are: Old age and senile decay, brain exhaustion, fever, sunstroke, etc.

Prognosis.—The prognosis, as might be expected, is exceedingly bad. In cases preceded by mania, the improvement of the physical health without a corresponding amelioration of the mental condition, is of the most unfavorable omen. Some rare cases of recovery, however, are said to have occurred, especially among young subjects, after severe attacks of fever or acute mania. Pinel informs us that many young persons, who had passed several years or months at the Bicêtre in a state of complete dementia, had had their reason restored to them in this manner, though as a general rule such attacks are fatal to lunatics. Such accidental recoveries can only take place during the stage of dementia; after complete amentia has set in the case is altogether hopeless.

Pathology.—The anatomico-pathological condition is one of diffuse interstitial inflammation of the great nervous centres, which leads sooner or later to destruction of ganglion cells and atrophy of the nervous structures. There is thickening and adhesion of the dura mater, an cedematous state of the pia mater, and an effusion of serum over the middle and posterior lobes of the brain. The pia is discolored and thickened, and adheres to the surface of the brain with such tenacity as to tear the cineritious substance on attempting to separate it. The convolutions are wasted, especially those of the anterior lobes, which are changed into an inert mass by degeneration

and destruction of the ganglionic cells, the formation of amy-laceous bodies, and hypertrophy of the connective tissue elements, which condenses and indurates it. The bloodvessels undergo calcareous degeneration, and their sheaths, according to Dr. Lockhart Clarke, are enlarged from atrophy of the cerebral tissue, and contain granules of hæmatoidine. The ventricles are dilated, the medullary matter softened, and the central ganglia shrunken and puckered. The weight of the brain is often found reduced to two pounds, and even less. Such extensive degenerative changes, however, are only found in cases of complete dementia; lesser degrees of the affection being, as a rule, attended with similar but less marked alterations. In the earlier stages they are chiefly confined to the evidences of inflammation above noted, such as effusion, adhesion, thickening, etc.; while the degenerative changes and wasting belong mostly to the latter stage. Indeed, the degree of imbecility is generally pretty accurately measured by the amount of atrophy and destruction of ganglion cells which the cerebral nerve-centres have undergone.

Treatment.—On this point little can be said. The same careful tending and nursing are required as in infancy, the weakness and helplessness being equally great. Although a cure is not to be expected, medicines are often of the greatest utility. Such remedies as *Arsenicum*, *Acidum nitr.* and *phosph.*, *Carbo veg.*, *China*, *Digitalis*, *Phosphorus*, *Nux vom.*, *Podophyllin*, etc., are frequently required to render the patient more comfortable, and to prolong his life; while during the earlier stages, the decay of the mental faculties may be greatly retarded, and in some cases arrested, by *Anacardium*, *Ignatia*, *Nux vom.*, *Phosphoric acid*, etc., the selection being determined strictly according to the symptoms presented by the patient at the time of prescribing.

CHAPTER III.

CEREBRAL EXHAUSTION.

Cerebral exhaustion, or *brain-fag*, is a species of mental debility resulting from overtasking the faculties of the mind. In these days of severe competition, not only our business men, but our academic and collegiate youth, our scholars and our professional men, are all struggling to attain to the foremost rank in their several callings, and in the attempt to reach it, often make shipwreck, not only of their hopes, but of their minds, by exertions which prematurely exhaust their nervous resources. Brain-work is not unhealthy, provided it is not carried to excess, and is not attended by constant worry and anxiety. On the contrary, it is, under favorable circumstances, as healthy an occupation as any out-door employment; but such is the intense application, anxiety and responsibility involved in the present pursuit after wealth, station and fame, the constant worry it produces, the tremendous strain on the mental faculties, coupled with the continual violation of the plainest and best-established rules of hygiene, that it is no wonder the mental powers soon become exhausted. For be it remembered, it is not simple brain-work that causes the mischief, if it were, the Germans, who surpass us all in intellectual achievements, would be a nation of sufferers from cerebral neuræsthenia; but it is excitement, anxiety, and mental distress that cause the disease. Were we to return to the quiet life and labor of our forefathers, such consequences would not ensue, nor would we as a nation be half as prone as we are to other nervous disorders. The English nation from which we sprung, are more sensible in this respect than their fast-living,

brain-exhausting American cousins, and they doubtless reap the benefit of their moderation in greater mental and physical possibilities.

Symptoms.—The initial stage is marked by excitability, frequent loss of temper, and a disposition to weep at trifling causes. The withdrawal of nerve-force manifests itself, also, by sleeplessness; frequent attacks of neuralgia; susceptibility to atmospheric influences, especially cold; palpitation of the heart, particularly after exertion; headache; loss of memory; loss of appetite; cutaneous eruptions, especially eczema and acne; heaviness and paralytic weakness of the lower extremities; backache, with creeping sensations along the spine; epileptiform conditions of the nerves, and sometimes transitory coma. Loss of virile power is a prominent symptom, and the one generally first noticed by the patient. At a more advanced stage, the disease verges upon insanity. The patient loses all control over his moral faculties; he becomes melancholy; irascible; given to hobbies; self-willed; and is very apt, if temperate, to become addicted to the use of intoxicating liquors, for which he has a morbid craving. An examination of the urine of such patients, will show that the disease is attended with a copious discharge of phosphates. This waste is soon followed by profuse night sweats, and great debility. If not arrested, the disease will lead to emaciation and premature old age, if not to suicide.

Causes.—These have been sufficiently noticed in our introductory remarks. The chief cause is over-work, coupled with anxiety, fast-living, and unhealthy competition.

Treatment.—Hygienic measures are of the first importance. The chief of these are rest, and a radical change of scene, diet and habits. On this subject, Dr. Radcliffe, in his "Croonian lectures," gives the following sensible advice:

"*Diet.*—A properly mixed diet is best in the generality of cases. The present practice of urging persons at all weakly, especially children, to eat as much meat as they can, may have not a little to do in developing many nervous disorders, and in deranging the health in many other ways besides—perhaps in causing liver and kidney and other glandular disease by overtaxing the eliminating powers of these organs.

Exercise.—Too much walking may be one cause of a breakdown in health, in which little or no progress is made towards recovery until the patient begins to economize his strength in standing quite as much as in walking, perhaps more. It would often seem as if the amount of vital power at the disposal of the individual did not allow of much head-work and much leg-work together, though quite sufficient to allow of a fair amount of either singly; and that, under these circumstances, if the head-work must be done, it is expedient to avoid walking exercise rather than to seek opportunities for taking it, and often to settle down in an easy-chair and have a nap than to walk at all. It is a common thing for a person suffering from cerebral exhaustion to find that he cannot stand or walk except for a short time, and that, if he persists, he soon becomes faint and breathless and unable to talk, though comparatively fresh and well before. It is also a common thing, in such a case, for walking exercise, however moderately indulged in, to be followed by inability to keep the thoughts to the point, or by distressing drowsiness or actual sleep; the walking, in short, having brought on head-symptoms which were not present previously. In very many cases, the persistence in walking and standing, when rest is rather needed, has had much to do, not only with bringing on and keeping up a state of cerebral exhaustion, but with pushing matters to the crisis of hemiplegia.

Brain-work.—In regard to head-work, *rest* may be too much insisted upon in cerebral exhaustion and in other cases of the kind. What is wanted generally, even at the beginning, is, not that work should be given up altogether, even for a short time, but that it should be moderated in amount, or changed. It is a grave mistake to let the mind lie fallow, even for a short time, not only in the particular case under consideration, but in all cases where head-symptoms have to be dealt with—in epilepsy, for example, no less than in cerebral exhaustion. Of course this notion may be carried too far. Undoubtedly harm may be done by pressing the necessity for work too strongly; but, practically, this danger will prove to be small in comparison with that of letting the mind lie fallow.

Sleep.—With regard to sleep, the recumbent position has obviously very much to do with it. Undoubtedly sleep may occur in the sitting posture, and even while standing, but these cases are exceptional. It is certain, also, that sleep in bed is, as a rule, sounder with a low pillow than with a high one. If, then, there be a state of wakefulness at night, the head should be kept low; if on the contrary, there is undue sleepiness, the head should be kept high. The degree of sleep, and the amount of it, may be regulated by simply taking care that the head is in the right position. If prolonged recumbency is a necessary part of the treatment, the tendency to sleep too much during the day and too little at night may be thus corrected. By raising the head in the day-time, the patient remains awake sufficiently to be able to sleep at night; by depressing the head at bed-time, the conditions are rendered more favorable to sleep during the night; and, as a rule, sleep is to be conciliated in this way without the help of narcotics."

Change.—But after all, as stated in the outset, many cases will fail to yield satisfactorily until a radical change of scene, temperature, atmosphere, diet and habit is brought to bear upon the mind and body of the patient. The tendency is for the mind, as well as the body, to become greatly depressed, and in this state will react upon itself by continual worry and anxiety, unless occupied by new thoughts and associations. As long as the patient remains surrounded by the same objects, there is nothing to change the current of his thoughts, and so he sits and broods over his condition, until he works his mind into a state of feverish excitement, as wearing upon it, if not more so, than the most intense application to study or business. A total change of scene, therefore, is often called for in these cases, even when there is no other reason for making it. But too high or too low a temperature is prejudicial in cases of cerebral exhaustion, especially the latter, and no amount of clothing, or of artificial heat, will compensate for too great a reduction in the temperature of the atmosphere. When the nervous system is greatly weakened, the patient is as sensitive to extreme atmospheric changes as a thermometer, and a cor-

responding degree of nervous depression is sure to result from them. The patient, therefore, should, if possible, go north in summer and south in winter, in company with a congenial companion, so that the mind may be diverted and exhilarated by new scenes and associations, and the nervous system relieved of all unnecessary strain.

Illus. 202.—Reuben M., æt. 34, broker and speculator, had become broken down by a variety of causes. In addition to his own affairs, after nursing his father through a long and fatal illness, he was called upon to attend to his extensive business, a large cotton manufactory, which was left in a very unsatisfactory state. In addition to this, his only son was stricken down with typhoid fever, and although his life was spared, his father passed many sleepless and anxious nights on his account. For the last three months and a half he had been under allopathic treatment, all the time getting worse, and when I was called to take charge of the case, his condition was as follows: Anæmia, wakefulness, great weakness and prostration, feeling of exhaustion in the chest, considerable pallor of the face and hands, emaciation, loss of appetite, constipation, palpitation of the heart, great depression of spirit, solitary, taciturn, irritable, suffering with profuse night-sweats, followed by chilliness. Pulse 90; temperature 96°. For the night-sweats, chilliness and general weakness, he had been taking, for about two weeks, quinine and aromatic sulphuric acid. I placed him on *Phosphoric acid*, 1x dil., fifteen drops in a tumbler of water, a teaspoonful three times a day. This put an immediate stop to the night-sweats, and they did not return. The urine was found loaded with phosphates, which did not perceptibly diminish under any treatment that was tried, including Phosphor., Calc. hypophos., Pier. ac., Hyosc., Arnica. As a consequence, the patient, though relieved of his annoying night-sweats, chilliness, etc., gradually grew weaker and more depressed in spirits; and as the weather was extremely cold, it was determined to send him south for a change of scene, climate and habit. His cousin accompanied him; and as he had received the most benefit from the *Phosphoric acid*, he continued to take it during his trip, but took no other medicine. After

spending about six weeks in Florida, he traveled by easy stages through the Gulf States, and when he returned to his home in June, after an absence of about five and a half months, he was well, and able to resume his business.—*Hart*.

Medical Treatment.—The remedies which have proved most beneficial in cerebral exhaustion are: Erythroxyton coca, Calcis hypophos., Ignatia, Nux vomica, Picric acid, Phosphoric acid, Phosphorus, Secale cor., Pulsatilla, Arnica, Rhus tox., Zinc phosphide.

Arnica.—Weak, pale, nervous individuals, suffering from a general sinking of strength, and a disposition to faint; drowsiness during the day, but wakefulness during the night, or until two or three o'clock in the morning; irritable, peevish and disposed to be quarrelsome; greatly depressed in spirit, and fearful that he will never recover his health; loss of appetite, with a bad taste, desire for sour things, and a repugnance to meat; nausea, and empty or offensive eructations; feeling of exhaustion in the chest; pain in the small of the back; yellowish urine, filled with phosphates; trembling in the lower extremities, with great weakness and prostration.

Calcis hypophos.—Nervous prostration, with depression of spirits; profuse night-sweats; pale, wan and emaciated countenance; loss of virile power; habitual coldness and venous congestion of the extremities from debility; sleeplessness, loss of appetite and emaciation.

Erythroxyton coca.—Sleeplessness and disinclination to work or move; mental depression, with anxiety and palpitation of the heart; pale lips and gums, with quivering of the lips; loss of appetite, constipation with abdominal distention; oppression of breathing arising from debility; eruptions in various parts of the body of eczema and acne; fainting fits from nervous weakness; general debility, the least exertion is attended with fatigue.

Illus. 203.—A gentleman consulted me last March, by letter, about his hearing, for which I recommended an infusion of *Coca*, in case the 3d tincture gave no relief. On the 2d of August, following, he replied: "I delayed answering your letter until I had given the *Coca* a fair trial. I got some leaves and

made an infusion, putting twelve to twenty leaves in a small teapot, with about a breakfast cup and a half of boiling water, allowing it to infuse for some fifteen minutes. This I took morning and evening, and still take it instead of tea, and for about three months the effect has been something wonderful; from being depressed and very low spirited, easily tired, I can now walk any length of time without feeling fatigue. Before taking the *Coca* my nerves seemed so unstrung, that when I read a pathetic tale I could not refrain from becoming very much affected, although I tried hard to overcome the absurd feeling. Now I am quite myself again.

October 22d.—I continue to take the *Coca* for breakfast and tea without milk or sugar; it has done me a world of good, and I feel myself up to any amount of work, although I have just turned fifty-eight. I attribute all this to the *Coca*. For breakfast I take a plate of oatmeal porridge, and then the *Coca* with an egg, or some cold meat or bacon, with toast without butter. We dine at half-past two. I take mutton or beef, no potatoes, and very few vegetables, and sometimes fish before, a light pudding after, but no pastry, nor cheese, nor soup, as these seem to affect my hearing.—*Dr. Tuthill Massy.*

Iguatia.—Sleeplessness; apprehension; disposed to weep from the most trifling causes; weakness of memory; alternate excitement and depression; pale, sunken face, or alternate redness and paleness; loss of appetite; feeling of repletion after swallowing the first mouthful; complete absence of the sexual desire; oppression of the chest and breathing from weakness, especially after midnight; palpitation of the heart after eating, or in the morning; coldness of the extremities, with heaviness and weakness.

Nux vomica.—Irritability of temper, headache, wakefulness, constipation, and bilious derangement.

Phosphoric acid.—Profuse night-sweats, followed by chilliness; cold sweats during the day, or on the least exertion; falling of the hair; great fatigue on exertion; loss of virile power; general debility, with feeling of extreme weakness and prostration.

Phosphorus.—This remedy, either in the form of food or

medicine, is essential to cure in most cases. The chief indication is an excess of phosphates in the urine, showing that the brain is deprived of its phosphorus. As it requires to be given in a low form, it should be taken immediately after eating, in order to avoid irritating the stomach.

Picric acid.—Great chilliness, followed by cold, clammy sweat; general lassitude, with great muscular weakness; chilliness, coldness of the feet, and heaviness and weakness of the extremities; profound debility, with speedy exhaustion from the slightest exertion; excess of phosphates in the urine.

Pulsatilla.—Gloomy and melancholy, with constant disposition to weep; anxiety, apprehension and irresoluteness; pale face, or redness alternating with paleness; want of appetite, with bad taste in the mouth, and coated tongue; unsteadiness and weakness of the lower extremities, with heaviness; especially adapted to sensitive females whose monthly periods have become deranged.

Rhus tox.—Restless anxiety and apprehension, accompanied with uneasiness about the heart, or pain in the small of the back; complete loss of appetite for any kind of food; cutaneous eruptions, especially eczema and acne; heaviness and weariness of the lower extremities, with general debility.

Secale cor.—Wakefulness at night, or restless sleep, with heavy dreams; great depression of spirits, with sadness and anxiety; difficulty of thinking and talking; hardness of hearing, with humming and roaring in the ears; cheeks pale and sunken; aversion to food, with nausea and eructations; anxious and difficult respiration, the result of nervous debility; weakness of the lower extremities, with numbness, insensibility and coldness; cold sweat, attended with chilliness and slow, weak pulse.

Zinc phosphide.—The indications for the employment of this remedy, according to Hale, are: "brain-fag of business men who become haggard, pale, sleepless, and suffer from depression of spirits and causeless worry." According to Hammond, who first introduced the remedy, it removes the debility, mental depression and paralysis following attacks of cerebral congestion or apoplexy.

Illus. 204.—J. B. McK., merchant, about forty years of age, nervo-bilious temperament. For five or six years he had suffered from extreme nervousness, affecting his head mostly, and upper part of spinal column; pain sometimes in his neck and back part of the head; then again in his temples, as if something was pressing in from one side to the other on the brain; vertigo or dizziness always present; weak digestion, torpid liver; hands and feet always cold; one of the most distressing symptoms, that of fear; he was constantly oppressed with an indescribable anxiety, or indefinable fear—fear of something, he knew not what; was easily startled. A prominent feature of the case was, that a recumbent position always relieved the vertigo and improved the other symptoms. This is but the outline of a series of unpleasant symptoms that medicine had failed to relieve. In February I put him on *Zinc phosphide*³, and under date of April 12, he writes: "So much better I have discontinued the medicine."—*Dr. J. A. Young.*

Illus. 205.—Maurice C., æt. 34, merchant, broke down from mental anxiety attending an effort to prevent an assignment in 1874. For ten or twelve weeks he had not slept more than one hour out of every twenty-four, and would frequently lie awake the whole night. He was troubled with headache, and vertigo, great depression of spirits, dread of something about to happen, excessive nervousness, loss of appetite, bitter taste in the mouth, genital organs relaxed and flabby, coldness of the hands and feet, great weakness and feeling of insecurity when standing, and sometimes when sitting, great heaviness and weakness in the lower extremities, oppression of the chest and difficulty of breathing after the least exertion, inability to grasp an object with any firmness, and an equal inability to think consecutively and to any purpose. Other remedies, including *Nux vomica*, *Ignatia*, *Phosphorus*, *Phosphoric acid*, and *Strychnia*, having failed to relieve him, I placed him upon the *Phosphide of Zinc*³, three times a day, with the happiest effect. In about five weeks from the time that he took the first dose of the medicine, he was well enough to resume business, and he has remained well since, a period of over four years.—*Dr. Francis Temple.*

CHAPTER IV.

DELIRIUM TREMENS.

Delirium tremens, or, as the disease is sometimes termed, *delirium potatorum* or *ebriosorum*, is a form of delirium resulting from the habitual use, or rather, abuse of alcoholic liquors; and is so called from the muscular tremors that accompany it. The delirium is of a muttering, hallucinatory, stirring, anxious, apprehensive kind; and the tremors, though general, are chiefly confined to the hands and tongue, the latter being especially observable when protruded. The disease should not be confounded with *inebriation*, or an ordinary fit of intoxication; much less, with *dipsomania*, or a morbid craving for intoxicating drinks, which is a species of moral insanity (q. v.). Prior to the year 1860, the disease was generally classed among the neuroses, but it has since become the fashion to rank it among zymotic diseases; as, however, it is much more a nervous than a zymotic disorder, we shall treat of it as such.

Symptoms.—In most cases the attack is preceded by symptoms of chronic alcoholism, the principal of which are: wakefulness, dulness of intellect or mental stupor, and loss of natural appetite, especially for solid food. These precursory symptoms, it will be observed, are not peculiar to delirium tremens, being common to many other affections, especially those implicating the cerebral functions. Hence, they are of but little value in a diagnostic point of view, except as they are weighed in connection with the individual's habits. These symptoms may continue for a considerable period before the delirium sets in, and when it does, it is manifested by an increase of the

same symptoms; the patient experiencing an utter loathing of food, want of mental control, and complete loss of sleep. This condition produces a restless, irritable state of the mind and body, which soon reaches an extreme degree. The hands and tongue become tremulous, and the excitement is heightened by the patient making constant but ineffectual attempts to occupy himself, in consequence of the incessant agitation and alarm under which he labors. His mind is filled with various painful delusions, concerning his friends and others, whom he thinks are plotting mischief against him; and this is increased by spectral illusions and imaginary horrors, in which he sees snakes, beetles and rats swarming about the room and in his clothing, ready to devour him, and which he is constantly trying to drive away, or from which he makes frantic efforts to escape. Even in his more quiet moments he is restless, constantly changing his position, and visibly trembling, often declaring that strangers are present, or are lying in concealment, ready to attack him. He is, however, generally, easily pacified, and may be induced to remain quiet for a considerable period, by such measures as are calculated to insure confidence. He is evidently in mortal dread of some enemy, either appearing or disappearing to his mental vision, and this, with the deprivation of sleep and nourishment, give him a pale, weak, and worn appearance. The tremor, which affects the hands and upper extremities generally, is in most cases incessant, but sometimes, especially in young and otherwise healthy subjects, it is almost entirely wanting. The skin is cold and clammy, the bowels costive, the urine scanty and loaded with urates, and there is pain and sense of constriction in the region of the liver. The carotid arteries throb with violence, but the radial pulse is small and weak, varying in frequency from 90 to 120. The eyes are red and injected, the tongue foul, and the appetite entirely lost. After this condition has lasted two or three days, a state of exhaustion sets in, which either terminates in a tranquil sleep, or ends in collapse and death. There is a natural tendency for the disorder to terminate in sleep at the expiration of the period mentioned, and this sleep being critical, the patient awakens from it convalescent, though still weak and exhausted.

Causes.—It is now a well-established fact, that delirium tremens is a toxological condition, the direct result of the poisoning of the nervous centres by an accumulation of alcohol in the system, in consequence of the continued abuse of stimulants, and not, as was formerly supposed, a disease of exhaustion or irritation, resulting from its sudden withdrawal or diminution. Its effects upon both man and animals have been carefully studied, and its poisonous qualities clearly demonstrated. If a toxic dose is given to a dog or other animal, it loses control over its muscular movements, exhibiting at first the usual symptoms of intoxication. It walks in an uncertain and irregular manner, as though its movements were no longer under the control of its own will. After a time the hind-legs become paralyzed, the fore-legs preserving, to some extent, their activity. The general sensibility diminishes, and soon the animal can neither feel nor see. After this the respiration fails, and finally the circulation ceases—life becoming extinct. The effects of alcohol upon man are only too well known. That it acts upon the brain through the medium of the circulation, was not clearly demonstrated until 1860. In that year, MM. Lallemande, Perrin, and Duroy, of France, published an elaborate work, entitled: *Du Rôle de l'Alcool et des Anesthésiques dans l'Organisme*, which received the prize from the academy of sciences. In this work, which abounds in careful and well-managed experiments, it is conclusively shown, that "alcohol stays for a time in the blood, that it exercises a direct and primary action on the nervous centres, whose functions it modifies, perverts, or abolishes, according to the dose; that neither in the blood nor in the expired air are any traces to be found of its transformation or destruction; that it accumulates in the nervous centres, and in the liver; and that it is finally discharged from the system by the ordinary channels of elimination." (*Op. cit.*, p. 580). So far from carbonic acid being one of its final products, as was formerly thought, these authors show that it causes a diminished exhalation of that gas. The alcohol, when it has entered the blood, is diffused over the whole system, remains, apparently, during different periods in different organs and parts, and begins almost immediately to

escape; and if as much as eighty grammes of spirit of wine is taken, the urine passed some hours afterwards yields by distillation an amount of alcohol capable of burning; and the elimination by this channel continues for sixteen hours or more. The elimination through the lungs continues for about half this period. These authors believe that the skin is the chief excreting organ, but they have no data for showing how long the process is continued. They show that when a quantity of wine, equivalent to thirty grammes of alcohol, has been taken, its presence may be readily detected in the blood, the urine, the expired air, and the cutaneous exhalation in the course of half an hour after it has been taken. In animals destroyed when intoxicated, the brain and liver are found to yield, weight for weight, considerably more alcohol than the blood. It is thus seen that alcohol, by accumulating in the system, acts, more especially, upon the nervous centres, giving rise to the symptoms of chronic alcoholism, and finally to delirium tremens.

In the light of the above facts, we can easily understand how much the danger is increased, by the almost total abstinence from food, which those addicted to the use of alcoholic stimulants are inclined to practice, in consequence of the loss of appetite produced by them, and the loathing they have during the seizure for every form of solid food. On this subject Sir James Paget says: "So long as a man keeps up both eating and drinking he is in little risk of delirium tremens. Either when he suddenly leaves off eating and takes to drinking, or when he gradually diminishes his food and increases his drink, he is in the greatest danger of that disease. So that we come to this—which may seem paradoxical and immoral too—that a man who both eats and drinks too much, is in less danger than a man who commits only one of those excesses. The double fault is less mischievous than the single; the eating counteracts the harm that would ensue from the drinking. If we look about in society we may see this very plainly. There are still many persons habitually engaged in too great eating and drinking, doing both to excess; and they are in danger of breaking down in various defects of digestion and

the consequent disturbances, but they are in no danger of delirium tremens. The people who are in that danger, and show the evil effects of drinking in the most marked form, are they who drink largely and eat little."

Anatomical Appearances.—In death from acute alcoholism, according to Althaus, a strong alcoholic smell is observed in the cavities of the body and in the muscles. The liver, spleen and kidneys are hyperæmic, the mucous membrane of the pharynx, œsophagus, stomach, small intestines, and bronchial tubes is red and injected. The membranes and substance of the spinal cord and brain are hyperæmic, the left ventricle and arteries empty, the right side of the heart, the large veins and the tissue of the lungs contain a very large quantity of dark fluid blood. The brain is firm and white, and in the ventricles a quantity of serum is found, which smells strongly of alcohol. In chronic cases are often super-added, sclerosis of the cerebro-spinal centres, in cases attended with imbecility, insanity and paralysis during life; chronic catarrh of the bronchial tubes, which is sometimes combined with emphysema, and has during life given rise to asthma and other respiratory troubles; enlargement of the liver, granular degeneration and cirrhosis of that organ; atheromatous disease of the heart and arteries, and lastly the atrophic form of Bright's disease of the kidneys. The blood has been found charged with fat, so that the serum appears milky-white, and loses this color when treated with ether, showing that it is not due to particles of albumen or white blood-globules.*

Pathology.—Since the year 1854, when Dr. Peddie, of Edinburgh, published his facts and arguments in opposition to the fallacious notions then held as to the nature of delirium tremens, the views of physicians regarding the pathology of the disease may be said to have undergone a complete revolution. The general belief at that time was, that the disease was the result of temporary absence from drinking, whereby the system was deprived of its accustomed stimulus. Dr. Peddie has shown, both by analogy and by direct evidence,

* Althaus on *Dis. of the Nerv. Sys.*, pp. 134, 278.

that this is not the case. "Mercurial fumes, when long inhaled, produce a form of shaking palsy, known as the *tremblement mercuriel* of the French pathologists. Now, in this as well as in lead-poisoning, a cure can only be effected by removal from the poisonous atmosphere and occupation; otherwise the symptoms hourly increase, until tremors are followed by sleeplessness, delirium, and ultimately coma. Thus it is with alcoholic stimulants in the production of delirium tremens. In those of a nervous irritable disposition, the effect of a certain length of indulgence is to induce this condition, and beyond that stage, a small quantity of alcoholic stimulus will keep up and deepen the effect which, previously, a large dose would not do, or, in a less sensitive organization, could not do. Thus is explained the very common, but erroneous statement, made in regard to an individual affected with delirium tremens, that although for a considerable time he had systematically indulged in considerable quantities of wine, spirits and other alcoholic liquors, yet for a week or two he had drunk very sparingly, and, within the last few days, little or none; in fact, that he was now suffering from the withdrawal of his wonted stimulus. All this seems plausible, but the statement rather should have been that, although consuming large quantities of drink at one time, he had found latterly a smaller quantity affect him; that he then reduced still further the amount, but experienced an equal if not greater constitutional effect therefrom; and thus, from day to day, reduction was forced on him by his own sensations of gastric irritation, nervous excitement and muscular debility—these feelings being, in fact, nothing more nor less than the premonitory symptoms of an attack of delirium tremens, and just what might be looked for on the view that alcohol is in such instances a cumulative poison, and the exciting as well as the predisposing cause of the affection. Another erroneous notion, long held, was, that the disease is of frequent occurrence in habitual drunkards. But the experience derived from large prison-houses shows, that while fully three-fourths of the criminals committed belong to the intemperate classes, no bad effects are observed from the sudden withdrawal of the wonted stimuli, and the substitution of prison-fare."

Prognosis.—According to Dr. Aitken and other authorities, the greatest number die of delirium tremens between the ages of twenty and forty years, the largest mortality rate being between twenty and thirty, when it amounts to about twenty per cent. It is difficult to tell what influence sex has on the occurrence of the disease, some observers denying that the disease ever occurs in women; but the reports of the Registrar-General show that in England and Wales the rate of female mortality from delirium tremens for the period of twenty-five years preceding 1870, was in the proportion of one woman to eight men. This is believed to be a much higher rate for women than occurs in any other country. Althaus says that in Italy and some other European countries, the disease is never seen in them. In Norway and Sweden it is stated to be one woman to one hundred and seventy men; and in Germany and France it is only exceptionally seen in women, by practitioners of the largest experience. Dr. Aitken gives the rate of mortality in the East Indian hospitals as nearly twenty-five men to one woman.

Dr. Althaus deduces a very singular conclusion from his statistics on the subject. He says: "As the number of deaths from delirium tremens is known to correspond closely with the amount of strong alcoholic drinks consumed altogether by a population, it appears very significant that London, where nervous diseases are at a comparatively low ebb, should consume proportionately so much more alcohol than Wales, where these maladies are so singularly rife. The question, therefore, naturally presents itself, whether the consumption of strong alcoholic drinks is really *always* prejudicial for the nervous system, as has been, perhaps, too sweepingly asserted by many well-intentioned men of late years; whether whisky is really the 'devil in disguise;' and whether alcohol does not, in many instances, of course only when taken in moderation, *act as a preservative against the invasion of diseases of the nervous system.*" Now, it seems to me that this is very superficial reasoning. It is all on the '*post hoc ergo propter hoc*' principle. It makes no allowance for other influences, arising from local or climatic differences, to say nothing of constitutional or other

causes. We know that heredity has more to do with the prevalence of nervous affections than any other etiological influence; and it is certainly jumping at conclusions, to infer that, because the ratio of nervous diseases to the consumption of alcoholic liquors is much less in London than in Wales, therefore it exerts a preservative influence against their invasion. Are there no other habits peculiar to the denizens of London, that will exhibit an equal difference of ratios? If so, then such habit or habits, whatever they may be, must exert, *pari passu*, the same preservative power that is claimed for alcoholic stimulants! Perhaps the good people of London drink more 'pure mountain water' from the river Thames than their unfortunate neighbors over the border; then why not attribute the salutary influence to that!—is not the reasoning the same? Or we might go back to the disease itself, and say, that as they suffer more from delirium tremens, *it* must have a beneficial effect in warding off other nervous diseases! It is hardly logical, therefore, for the doctor to qualify his statement as he has done, by saying that alcoholic stimulants "should be taken in moderation in order to act as a preservative against the invasion of diseases of the nervous system."

Treatment.—Proper hygienic treatment is of the first importance. During the stage of excitement, *fear* is one of the most prominent symptoms; and experience shows that confinement is certain to increase it. No more restraint, therefore, should be exercised than is necessary to prevent accidents. "Instead of confining the patients, I let them walk about and enjoy the company of others as much as they choose; merely taking care that some one should be near to prevent accidents. I was led to this change by observing that the hallucinations which attend the disorder were more distressing when the patients were in a state of confinement than when they were allowed to walk about as much as they wished. As I have already remarked, they are capable of controlling these hallucinations, until the intellect is entirely destroyed; and they can do so the more easily when they are surrounded by objects which serve to engage their attention. Confinement always irritates them, and increases their ravings, so that the stage of ex-

haustion, in which the intellect is entirely destroyed, is apt to be brought on very speedily. I have very often tested this by a simple experiment. A man who was confined to his bed by a strait jacket, or something of the kind, I have frequently directed to be dressed, have soothed him by conversation, and after requiring a promise that he would conduct himself with propriety, I have very seldom found reason to be dissatisfied with the result. On the contrary, the disease would almost invariably become milder, and the necessity of confinement cease. I therefore allow the patient to have full liberty, the only restraint being the presence of the keeper; sometimes, also, I direct them to be set at work, which serves still farther to distract their attention."—*Gerhard*.

The chief danger to be apprehended and guarded against is exhaustion; hence care should be taken to support the strength of the patient by nutritious, easily-digestible food, in a fluid form, such as beef or mutton soup, or, if this is too heavy for the stomach, beef tea, coca, warm milk, egg-emulsion, etc. Sometimes a cup of warm coffee is both soothing to the nerves and supporting to the system. Aitken recommends Cayenne pepper. "The stimulus of such a spice as *Cayenne pepper*, given in soup, on the atonic stomach, will have a favorable influence on absorption." The following case shows that it is capable, also, of acting as a curative remedy:

Illus. 206.—An habitual drunkard of great capacity, having already suffered from many attacks of delirium tremens, after long abstinence from food, subsisting entirely during the interval upon liquors, of which he took a great variety and an incredible quantity, was attacked with a very severe form of delirium tremens. The prostration was extreme, the tremor excessive, but the delirium bland, the chief hallucination being that the ceiling was about to fall and crush him, rendering it necessary for him to jump from the bed and hop around the room with as great activity as his weak condition would allow. His tongue was heavily coated, pulse small and irregular, skin moist, the forehead being constantly bedewed with a cold, clammy sweat. His voice was feeble, husky and tremulous; he had had no sleep for three nights. The treatment was

directed principally to sustaining his strength, but all efforts to obtain sleep were for fifty-two hours unavailing. At the end of this time two boluses, each containing one scruple of *Cayenne pepper*, were given, and within two hours the patient was quietly sleeping; the skin, feet, and hands, for the first time, being warm. After fourteen hours of quiet sleep, he awoke with a desire for something to eat, and from this made a fair recovery.—*Dr. Reed, Jr.*

The elimination of the poison from the system should be encouraged by hot or cold baths, according to the reactive power of the constitution. Sometimes the *wet-pack* may prove serviceable. If there is much prostration, the *blanket-bath* will best promote perspiration, besides being the safest. This consists in wrapping the patient in a blanket wrung out of hot water, over which are wrapped three or four dry blankets, the patient being allowed to remain in them for a half hour or more. The effect of this bath is often materially increased by giving the patient a tumbler of cold water previous to the removal of the coverings. After the latter are taken off, the surface of the body should be well rubbed with warm towels, not only for the purpose of drying the patient, but to obtain the benefit of the friction, which is not inconsiderable.

Medical Treatment.—The following are the leading remedies for this affection: Antimonium tart., Arsenicum, Belladonna, the Bromides, especially Camphor brom. and Kali brom., Cannabis ind., Capsicum, Cimicifuga, Cypripedium, Digitalis, Gelsemium, Hyoscyamus, Nux vomica, Opium, Scutellaria, Solanum, Stramonium. Chloral hydrate is sometimes a useful remedy as a palliative, and to quiet the patient when he is so violent that he will not take regular doses of medicine, for fear of being poisoned (*Brown*). In such cases, a full dose (grs. xx—xl,) rubbed up with equal parts of simple syrup and Balsam of Peru, given at bed-time, will often produce a good night's sleep, from which the patient will awake greatly refreshed.

Antimonium tart.—This remedy, either singly or in alternation with Opium, is invaluable in cases of high delirium attended with obstinate sleeplessness, especially in low states

of the system, and when there is a febrile movement of the circulation.

Illus. 207.—J. C., æt. 43, canal-boatman, had been drinking hard for several weeks, but for the past two weeks had been endeavoring to reform, being under religious conviction. On the night preceding my being called, he had come to my house late at night, attended by his daughter, but not finding me up he sat upon the step an hour or so, and then returned to his home, being too timid or too undecided, it seems, to arouse me. On reaching his house I found him in a fearful delirium, running about the room in his night-clothes, and throwing the pillows at the demons he imagined were trying to seize him and drag him down to hell. His eyes were red and injected, the forehead was covered with cold perspiration, and the hand trembled so that I could scarcely manage to count the pulse, which was about 96, quick and irritable. I found that he had neither eaten nor slept for more than a week. His wife was ill with consumption in an adjoining room, and her coughing appeared to greatly annoy him. After quieting him as much as possible, by assuring him that I would keep off the devils that were after him, I got him back to bed, and gave him a dose of *Antimonium tart.*³² in powder, which was repeated every fifteen minutes until he slept, which he did after having taken four doses. The next morning I still found him sleeping quietly, and did not disturb him. He awoke about noon, and his daughter gave, as advised, a bowl of mutton broth with barley. I saw him again in the evening, and found him quite rational, but very weak and prostrated. His pulse was 84, and considerably fuller and stronger. He made a speedy recovery, having taken no medicine except the four doses of tartar-emetica.—*Hart.*

Arsenicum.—Hughes recommends this remedy when there are muscular tremors and great prostration, with nervous derangement and gastritis. Other indications are: fear, with great anguish and sweat, dread of ghosts, of thieves, or of death, and especially of vermin crawling about the bed.

Illus. 208.—We remember a case of delirium tremens where the patient complained of vermin crawling over his bed and
¹unds. *Arsenicum*³⁰, cured him entirely.—*Dr. C. J. Hmpel.*

Camphora bromata.—Hale recommends this remedy in cases of cerebral anæmia. He says of the following case, "there may have been congestion of the brain in the beginning, but it could not very well have been present after the patient had swallowed one hundred grains of bromide of soda. In fact, the symptoms which existed when the Camphor bromide was given were those of cerebral anæmia, a condition in which five grains of the drug would be likely to have a good effect."

Illus. 209.—Delirium tremens in a large man of plethoric habits. Symptoms: great cerebral congestion, tremulousness and great jactitation of the limbs; conversation muttering and incoherent; pulse full and soft; no sleep for several nights; 100 grains Bromide of Sodium did not cause sleep; five grains Monobromide camphor caused sleep within half an hour; he slept over twelve hours; afterwards the same dose at night caused good sleep, and relief of all the other symptoms.*

Gelsemium.—Dr. E. A. Lodge was, I believe, the first one to direct the attention of the profession to this medicine as a remedy for obstinate sleeplessness. Dr. W. J. Blakely says it produced a thirty hours sleep in delirium tremens after morphia had failed. The indications are: great nervous excitement, headache, fear and wakefulness.

Illus. 210.—Henry W., æt. 34, sent for me August 20th, at 2 P.M. I found him watched by a male nurse, and displaying all the symptoms of delirium tremens, though his mind had so far retained its self control that he answered my questions rationally. He had been drinking whisky, and had not been able to sleep for ten successive nights. I left *Gelsemium* tincture, in the proportion of two to three drops for a dose, to be given every hour, and visited him again at 9 P.M. After I had left him, he had struggled in bed with the attendant, and kicked off the footboard, all the while, of course, calling for more whisky, which I had strictly forbidden. But after the second dose of *Gelsemium* he slept for four hours, and awoke in a gentle perspiration, feeling and seeming much calmer. Some light food was given, and he slept nearly the whole of that

* *Hale's Therapeutics*, 4th ed. p. 80.

night. The next morning he dressed himself and came to my office, when I gave him, observing that the drunkards' dyspepsia was now the chief trouble, *Nux vom.*¹, and earnestly begged him to drop all stimulants.—*Dr. J. M. Moore.*

Kali brom.—Hale says of this remedy: "The first or irritative stage of delirium tremens is ordinarily treated by five to ten grains of Bromide repeated every two or three hours; but the face must be flushed, eyes red, pulse quick and hard, with delirium of active type and horrid illusions. If the face is cold and pale, pulse weak and thready, Digitalis is the proper remedy. I have found these two medicines, aided by Cimicifuga² or Hyoscyamus³, to control all cases of that fearful malady."

Illus. 211.—C. C., laboring under his fourth attack of delirium tremens, under the care of a Doctor who had treated him with Opium and Digitalis, having passed seven nights without sleep. On visiting him on the morning of the eighth day, I found him quietly brushing the vermin from his clothing, and occasionally ordering the nurses to clear the room from the strange animals which were in every corner, and under every chair. His pulse was fair, tongue but lightly coated, skin moist and warm, appetite good, face somewhat flushed. The attack, and all former ones, had commenced with severe vertigo. His eyes were injected, bowels loose, owing to purgatives. I ordered rest from all medicines, strong soup, and oysters with an abundance of Cayenne pepper through the day; at eight o'clock at night I administered one drachm of *Kali brom.*, to be followed if necessary every hour by one-half that quantity. The dose had to be repeated but once, a quiet sleep being obtained for twelve hours.—*Dr. Read, Jr.*

Nux vomica.—This remedy is specially indicated during the forming stage, and also during convalescence. It has likewise proved curative in cases where the system was overwhelmed by the alcoholic poison, as in the following case:

Illus. 212.—A stout young man had drunk thirty-nine glasses of whisky on a wager in one night. We found him cold, and the skin dry and husky, like parchment. He felt numb all over. Pulse scarcely perceptible. He was in great agony of

mind, and expected to be utterly paralyzed. He was unable to sustain his own weight. I gave him six globules of *Nux vomica*³⁰, in half a cup of water, a dessertspoonful every five minutes. The patient sank visibly under this treatment. Being satisfied that *Nux vom.* was his remedy, I now mixed five drops of the strong tincture in six tablespoonfuls of water, of which mixture I gave him a dessertspoonful every five minutes. After the second dose he began to perspire. The perspiration seemed to be pure alcohol; he was literally drenched with alcohol. He had to be changed seven times during the night; next morning he felt quite well, except a little weak.—*Dr. Chas. J. Hempel.*

Many other remedies have been used successfully in this disease, but none has given me more satisfaction than our indigenous plant, *Scutellaria lateriflora*, which, when practicable, I prefer to give in the form of an infusion of the fresh plant, a cup or two of which is usually followed by a calm sleep, from which the patient generally awakes convalescent. No one remedy, however, will suit all, or even the majority of these cases, the successful treatment of which, like that of nervous diseases generally, will be best promoted by a close observance of the golden rule of legitimate therapeutics, namely, the strict individualization of every case.



INDEX.

For the symptoms, diagnosis, prognosis, etiology, pathology, and treatment of any particular disease, look under those heads, instead of under the name of the disease.

- Abscess, cerebral, effects of,** 12, 14; in paraplegia, 144; in hemiplegia, 14.
Acid. picroticum in locomotor ataxy, 193.
Aconite in facial paralysis, 161; in sciatica, 263; in angina pectoris, 280; in ovaralgia, 297; in mania, 369.
Aconitia in facial neuralgia, 241.
Acupuncture in sciatica, 264.
Agaricus in chorea, 93; in angina pectoris, 275.
Age and sex, influence of, in chorea, 87; in tetanus, 108.
Agnus castus in neuralgia trigemini, 241.
Agraphia, 205, 207.
Aitken, Dr., on delirium tremens, 393; on hydrophobia, 123.
Akinnesia, 134.
Alalia, 85.
Albuminuria in eclamptiform convulsions, 50.
Alcoholism, chronic, 389; acute, 393.
Allium cepa in neuralgia of the stump, 265.
Alluminum met. in infantile spinal paralysis, 156.
Althaus, Dr., on paralysis of the insane, 175; on progressive muscular atrophy, 181; on paralysis agitans, 196; on delirium tremens, 393; on the lower sphincters, 26; on tetanus, 110.
Amaurosis, 18, 19; secondary, 16; sympathetic, 24.
Amblyopia, 18, 19; crossed, 17; sympathetic, 24.
Amimia, 207.
Ammonia, liquid, in hydrophobia, 123.
Ammoniaemia, 50, 57.
Ammonium mur. in ovaralgia, 297.
Amyl nitrite in epilepsy, 74; in hysterio-epilepsy, 81; in tetanus, 115; in hemiplegia, 226; in angina pectoris, 277; in melancholia, 335.
Anacardium in hysteria, 320; in bulbar paralysis, 171.
Analgesia, 86.
Anarthria, 85.
Aneurysm, 13.
Anæmia, 11, 33; partial, 34; of spinal cord, 90.
Anæsthesia, 17, 20, 86; of extremities, 17; crossed, 20; hemi-, 17.
Angina pectoris, 269; remedies for, 275-282.
Animal heat, centre regulating the, 25.
Anstie, Dr., on neuralgia, 10; on sciatica, 237, 262.
Antimonium tart. in diphtheritic paralysis, 169; in delirium tremens, 393.
Apathy, mental, 18.
Ape, motory centre in the, 12.
Aphasia, 13, 14, 205; amnesic, 205, 207; atactic, 203, 207; transitory, 205; seat of, 14, 206; remedies for, 210.
Aphemia, 205.
Aphonia, paralytic, 214; remedies for, 218.
Apoplexy, 16, 19, 20, 52.
Apostoli, Dr., on the optic thalami, 17; on the spinal cord, 24.
Aranea diadema in catalepsy, 133.
Argentum nit. in locomotor ataxy, 193, 194; in facial neuralgia, 241; in gastralgia, 288.
Aristotle on hydrophobia, 118.
Arnica in eclampsia neonatorum, 48; in hemiplegia, 131; in paraplegia, 150; in facial paralysis, 162; in infantile paralysis, 156; in writer's palsy, 204; in brain exhaustion, 355.
Arsenicum in sciatica, 266; in gastralgia, 288; in delirium tremens, 399.
Arteria fossæ Sylvii, thrombosis of, 17.
Articulation, impaired, 17, 20, 85.
Asafetida in hypochondriasis, 327.
Asylum for the insane, 359.
Ataxy, locomotor, 154.
Atrophy of nerve-tissue, 10; of paralysed muscles, 179; in sciatica, 258.
Atropia in facial neuralgia, 242, 248; in ovarian neuralgia, 298.
Aura epileptica, 61.
Aurelianus on hydrophobia, 121.
Aurum in hypochondriasis, 325; in mania, 373; in angina pectoris, 275.
Balfour on insanity, 356.
Bamberger on aphonia, 216.
Baraduc on thrombosis, 138.
Bardsley, Dr., on hypochondria, 122.
Baryta in hemiplegia, 141.
Bastion, Dr., on post-paralytic chorea, 85.
Bathing in paralysis, 156.
Baths, lukewarm, in locomotor ataxy, 192; steam, in hydrophobia, 126; stimulating, in scrivener's palsy, 203.
Behr, Dr., on convulsions, 36.
Beard, Dr., on writer's palsy, 202.
Beckwith, Dr., on mania, 349.
Bedsore, 144.

- Belladonna in convulsions, 38, 40, 48, 53; in epilepsy, 70; in chorea, 94; in tetanus, 113; in hydrophobia, 126; in paraplegia, 130; in infantile paralysis, 136; in facial paralysis, 162; in bulbar paralysis, 172; in paralysis of the insane, 178; in hemiparesis, 227; in facial neuralgia, 243; in gastralgia, 289; in ovaralgia, 298; in hysteria, 320; in moral insanity, 343; in mania, 370; in angina pectoris, 273.
 Benedict, Prof., on tetanus, 110; on locomotor ataxy, 191; on chorea, 92.
 Berger, Prof., on epilepsy, 64, 65, 67.
 Bernard on aphonia, 213.
 Bernhart on cerebral neoplasms, 13; on paresis of the right side, 13.
 Billroth and Briond's researches, 24.
 Bismuth in facial neuralgia, 243.
 Bladder, paralysis of the, 17, 143; nerve-centres for the lower sphincters, 26.
 Blanket-bath in delirium tremens, 398.
 Blood-poisoning in tetanus, 110.
 Bockhammer, Dr., on paraplegia epidemica, 145.
 Bouilland, M., on the seat of language, 205.
 Bouchat, M., on infantile convulsions, 28.
 Boutzen, battle of, tetanus after the, 103.
 Brachet on convulsions, 32.
 Brain-fag, 380; remedies for, 385.
 Brain-work, 382.
 Breast pang, 269.
 Briquet, M., on hysteria, 76.
 Brigham, Dr., on insanity, 351.
 Broca, M., on the seat of language, 206.
 Bromine in hemiparesis, 227.
 Brown-Sequard on Guinea pigs, 23; on cerebral lesions and nerve-centres, 14, 15, 25.
 Bryonia in hemiparesis, 228; in facial neuralgia, 244; in sciatica, 266.
 Budge on the cilio-spinal centre, 25.
 Budin, Dr., on abdominal pressure, 54.
 Buhl, Dr., on diphtheritic paralysis, 166.
 Buisson, Dr., on hydrophobia, 125, 128.
 Bulbi, protruded, 17, 18.
 Burchard and Heilderhain, 23.
 Burns, blisters, etc., 31, 38, 138.
 Butler, Dr., on chorea, 92; on insanity, 351.
 Calcareo in convulsions, 43; in paraplegia, 162; in hemiparesis, 228.
 Calcis hypophos in brain-fag, 385.
 Camphora brom. in convulsions, 43; in chorea, 101; in paralysis agitata, 199; in delirium tremens, 400.
 Cannabis Ind. in epilepsy, 71; in hysterio-epilepsy, 83; in catalepsy, 133; in hypochondriasis, 329.
 Carbo-veg in gastralgia, 289; in angina pectoris, 276.
 Carville, M., on chorea, 88.
 Cardiac exhaustion in tetanus, 107.
 Carnomania, 313.
 Carotids, compression of the, 45.
 Catalepsy, 86, 130; remedies for, 133.
 Causticum in chorea, 83; in hemiparesis, 141; in paraplegia, 151; in facial paralysis, 163; in aphonia, 218.
 Cayenne pepper in delirium tremens, 397.
 Cedron in hydrophobia, 126.
 Centres, cerebro-spinal, physiology of, 9, 11.
 Cephalalgia periodica, 223.
 Cerebellar paralysis, 18.
 Cerebellum, functions of, 18; faradization and destruction of middle lobe, 19.
 Cerebral exhaustion, 380; remedies for, 385.
 Cerebral cortex and lobes, functions of, 11.
 Cerebro-spinal meningitis, 146.
 Chairol, Dr., on compression of the ovaries, 81.
 Change of habits, etc., 383, 80, 307.
 Charcot on the optic thalamus, 17; on the pedunculus cerebri, 17; on syphilitic epilepsy, 68; on hystero-epilepsy, 76; on thrombosis, 138; on bulbar paralysis, 168.
 Chauveau, M., on chorea, 88.
 China in gastralgia, 291.
 Chininum sulph. in facial neuralgia, 243.
 Cholæmic convulsions, 57.
 Choostek, Prof., on paralysis agitata, 197.
 Chloral in convulsions, 80; in chorea, 100; in tetanus, 117; in prosopalgia, 248.
 Choreo, 83; paralytica, 83; complications of, 88; reflex c., 87; congenital c., 83; remedies for, 92-101.
 Choreo and tremor, 16, 90.
 Cicuta in tetanus, 113.
 Ciliary neuralgia, 237.
 Cilio-spinal centre, 25.
 Cimicifuga in chorea, 92, 94; in intercostal neuralgia, 251, 256; in angina pectoris, 280; in ovaralgia, 229; in spinal irritation, 308; in melancholia, 336.
 Clarke, Dr., on tetanus, 110, 111; on dementia, 379.
 Coca in cerebral exhaustion, 383.
 Cocculus in infantile spinal paralysis, 156.
 Cohen on eclampsia uteri, 51.
 Collateral oedema, theory of, 12.
 Cold, influence of, in tetanus, 109.
 Collins, Dr., on convulsions of new-born, 46.
 Colocynthis in sciatica, 266.
 Coma, 20, 52.
 Compression of carotids, 45; of ovaries, 81.
 Conium in hemiparesis, 141.
 Convexity, tumors of the, 12.
 Convulsions, general, 27, 48; eclamptic form, 23, 27; infantile, 28; partial, 27; centric, 28, 29; symptomatic, 28, 29; eccentric, 28, 29; reflex, 28, 29; secondary, 28, 32; sympathetic, 28, 32; of the new-born, 46; of adults, 48; puerperal, 48; non-puerperal, 56; anæmic, 56; cholæmic, 57; from inanition, 58; hydræmic, 58; epileptic, 24, 61.
 Corpus striatum hemorrhage, 136, 137.
 Corpora striata, functions of, 16; faradization of, 16; tumors of, 16.
 Cortex, cerebral, centres in the, 11, 15; effects of their destruction, 11, 15; tumors of, 11.
 Cortical epilepsy, 64.
 Coordination, function of, 18, 56, 185-188.
 Coulston, Dr., on insanity, 353.
 Crocus in mania, 373.
 Croup, rectal, 32.
 Crura cerebri, functions of the, 18.
 Crus cerebelli, lesions of, 18.
 Cruveilhier, M., on chorea, 80.
 Cuprum in convulsions, 54; in chorea, 98.
 Cyanosis, 17.
 Cyclamen in hemiparesis, 229.
 Cyst, cerebral, effects of, 12.
 Cystitis, 143.
 Dax, M., on the seat of language, 206.
 Dejerine on diphtheritic paralysis, 166.
 Delirium tremens, 389; anatomical appearances in, 393; mortality in, 395; remedies for, 398.
 Delitescence in hydrophobia, 119.
 Delusion, 357.
 Dementia, 376; remedies for, 379; paralytica, 174.
 Dental neuralgia, 237.
 Dentition, 30, 38.
 Depression, cerebral, 355.
 Detmold's wire hook, 161.
 Diabetes mellitus, 18.
 Diagnosis of syphilitic epilepsy, 65; of hystero-epilepsy, 78; of chorea, 83; of facial paralysis, 137, 159; of bulbar paralysis, 170;

- of locomotor ataxy, 188; of paralysis agitans, 197; of writer's palsy, 202; of paralytic aphonia, 216; of neuralgia, 222; of hemiparesis, 223; of facial neuralgia, 231; of intercostal neuralgia, 249, 252; of sciatica, 261; of gastralgia, 287; of spinal irritation, 304; of hysteria, 317; of moral insanity, 341; of mania, 358.
- Diarrhœa, 32, 37.
- Dickinson, Dr., on tetanus, 110.
- Dieffenbach, M., on scrivener's palsy, 203.
- Diet, errors in, 29; in brain-fag, 381; water, 58.
- Diphtheritic paralysis, 164; remedies for, 166.
- Dipsomania, 389.
- Diseases, functional, 9.
- Double perception, 14.
- Dubois on hystero-epilepsy, 76.
- Du Bois Raymond on hemiparesis, 225.
- Duchenne, M., on chorea, 92; on progressive bulbar paralysis, 171; on locomotor ataxy, 184, 185.
- Duchenne's disease, 168.
- Dulcamara in infantile spinal paralysis, 156.
- Dupuytren on thrombosis, 138.
- Dysteria agitans, 197.
- Earl, Dr., on insanity, 359, 360, 361.
- Eccentric convulsions, 28, 29.
- Eckard's researches, 15.
- Eclampsia, 27, 48; infantile, 28; neonatorum, 48, 55; parturition, 48; toxica, 58.
- Ectasy, 86.
- Eggleston, Dr., on home-treatment of the insane, 361.
- Electricity in chorea, 92; in hemiplegia, 138; in infantile spinal paralysis, 153; in facial paralysis, 160; in diphtheritic paralysis, 166; in bulbar p., 171; in muscular atrophy, 182; in locomotor ataxy, 191; in paralysis agitans, 199; in paralytic aphonia, 216; in hemiparesis, 226; in prosopalgia, 247; in sciatica, 263; in intercostal neuralgia, 233; in angina pectoris, 279; in hydrophobia, 128; in catalepsy, 132; in neuralgia of the female genital organs, 297; in spinal irritation, 307.
- Electro-puncture in sciatica, 261, 264; in neuralgia of female genital organs, 297; in spinal irritation, 307.
- Emboli, cerebral, in chorea, 16; in hemiplegia, 136; of left middle cerebral artery, 14, 137, 208; Bernhart's observations on, 13.
- Emprosthotonus, 102.
- Epilepsy, 61; cortical, 64; vaso-motory, 64; thalamic, 63; reflex, 65; syphilitic, 67; remedies for, 70; zones, 24.
- Erb, Prof., on paræsthesia, 220; on tendon-reflex, 187.
- Erichson, Dr., on tetanus, 103.
- Eserin in chorea, 100.
- Esmarch on locomotor ataxy, 193.
- Essential paralysis of infancy, 154.
- Ether-spray in chorea, 92.
- Etiology of infantile convulsions, 28; of convulsions of the new-born, 46; of puerperal c., 50; of epileptic c., 66; of hystero-epilepsy, 80; of chorea, 87; of tetanus, 108; of hydrophobia, 121; of catalepsy, 131; of paralysis, 133; of hemiplegia, 136; of paraplegia, 147; of infantile spinal paralysis, 153; of facial paralysis, 160; of diphtheritic p., 165; of bulbar p., 170; of p. of insane, 175; of muscular atrophy, 180; of locomotor ataxy, 190; of paralysis agitans, 198; of scrivener's palsy, 202; of aphasia, 208; of paralytic aphonia, 215; of neuralgia, 221; of hemiparesis, 224; of neuralgia trigemini, 238; of intercostal n., 251; of mastodynia, 251; of sciatica, 259; of angina pectoris, 272; of gastralgia, 285; of female genital organs, 296; of spinal irritation, 304; of hysteria, 318; of hypochondriasis, 325; of melancholia, 334; of moral insanity, 341; of mania, 330; of dementia, 378; of mental exhaustion, 380; of delirium tremens, 391.
- Eulenburg, Prof., on muscular atrophy, 179.
- Eulenberg on locomotor ataxy, 193.
- Euphorbia in hydrophobia, 127.
- Exanthemata, 33.
- Excitement, cerebral, 355.
- Exercise in cerebral exhaustion, 382.
- Exhaustion, cerebral, 380; remedies for, 385.
- Exophthalmos, 17, 18.
- Eyes, conjugated deviation of, 14, 18; diseases of, in chorea, 90.
- Face-ache, 237.
- Facial neuralgia, 237; remedies for, 241-247; facial paralysis, 137, 158; remedies for, 162.
- Falling sickness, 61.
- Fall, tendency to, in different directions, 18, 19.
- Faradization in hydrophobia, 128; in catalepsy, 132; in hemiplegia, 138; in infantile spinal paralysis, 153; in diphtheritic p., 166; in muscular atrophy, 182; in locomotor ataxy, 192; in sciatica, 263; in paralysis agitans, 199; in paralytic aphonia, 217; in neuralgia of female genital organs, 297.
- Fatty food in sciatica, 261, 262; fatty degeneration of muscles, 153, 179.
- Favez, M., on compression of the carotids, 46.
- Faxon on double perception, 14.
- Female genital organs, neuralgia of, 293; remedies for, 297.
- Femero-popliteal neuralgia, 257.
- Ferrier's researches, 11; on function of coördination, 19.
- Fever, irritative, 38.
- Fibrillary twitching, 180.
- Flexibilitas cerea, 130.
- Flourens's theory of vicarious action, 11.
- Fomentations in gastralgia, 288.
- Food, artificial, 30; unwholesome, 30, 39.
- Foreign bodies, irritation from, 39.
- Fournier on syphilitic epilepsy, 68.
- Frederichs on cholæmic convulsions, 57.
- Friedreich, Prof., on muscular atrophy, 179.
- Fritsch's experiments on the cerebral cortex, 11.
- Functional diseases, key to, 10; meaning of the term, 9.
- Gait, vacillating, 18.
- Gall, Dr., on the seat of language, 205.
- Galvanism in chorea, 92; in hydrophobia, 128; in hemiplegia, 138; in facial paralysis, 160; in infantile spinal p., 153; in diphtheritic p., 166; in progressive muscular atrophy, 182; in locomotor ataxy, 192; in paralysis agitans, 199; in writer's palsy, 203; in paralytic aphonia, 216; in prosopalgia, 247; in intercostal neuralgia, 233; in sciatica, 261, 263; in angina pectoris, 279; in gastralgia, 288; in neuralgia of the female genital organs, 297; in spinal irritation, 307.
- Ganglia, cerebral, functions of, 16; excited by tumors, 11; by cortical stimulation, 15.
- Gangrene, local, in paraplegia, 144.
- Gastralgia, 283; remedies for, 288.
- Geisemann in convulsions, 41, 54; in tetanus, 113; in paraplegia, 131; in infantile spinal paralysis, 156; in facial p., 161; in diphtheritic p., 167; in paralytic aphonia, 218; in hemiparesis, 229; in hysteria, 320; in mania, 370; in delirium tremens, 400.
- General debility, 29.

- General paralysis of the insane, 173; remedies for, 170-178.
- Geniculate bodies, function of, 19.
- Georget, M., on dementia, 376.
- Gerhard, Dr., on confinement in delirium tremens, 396.
- Gerhard on paralysis of vocal cords, 216; on paralytic aphonia, 216, 217.
- Globus hystericus, 315.
- Glonoin in convulsions, 44; in paralysis of the insane, 176; in angina pectoris, 275.
- Gooch, Dr., on puerperal mania, 350.
- Grand mal and petit mal, 63.
- Gray, Dr., on insanity, 351.
- Grisolle on chorea, 88.
- Gros and Laucereaux on syphilitic epilepsy, 69.
- Gualiacum in sciatica, 267.
- Gubler on diphtheritic paralysis, 166.
- Gums, lancing of the, 38.
- Habits, change of, 80, 307, 383.
- Hair, changes in the, in neuralgia, 221.
- Hall, Dr. Marshall, on the excito-motory system of nerves, 21; on hysteria, 315.
- Hallucination, 357.
- Hamilton, Dr., on chorea, 92; on facial paralysis, 159; on scrivener's palsy, 201.
- Hammond, Dr., on Kali brom., 72; on chorea, 92; on bulbar paralysis, 168; on sciatica, 264; on writer's palsy, 203; on thalamic epilepsy, 63.
- Hanbner on syphilitic epilepsy, 68.
- Hematoline in vascular sheaths, 379.
- Headache, 12, 13; occipital, 18; frontal, 13.
- Hearing, disturbances of, 12.
- Heart disease in chorea, 88.
- Heker on eclampsia, 24.
- Helleborus in melancholia, 336.
- Helminthiasis, 31.
- Hemi-anesthesia, 17.
- Hemichorea, 83, 90.
- Hemicrania, 223; remedies for, 227-235.
- Hemiparaplegia, 142.
- Hemiplegia, 16, 17, 18, 136; remedies for, 141.
- Hemispasms, 17.
- Hepar s. c. in angina pectoris, 281.
- Heredity, 28, 66, 80, 221, 224, 238, 325, 351, 357, 396.
- Hippocrates on epilepsy, 61; on diphtheritic paralysis, 164.
- Hitzig's experiments, 11, 12.
- Homer on rabies, 118.
- Home treatment of insane, 361.
- Hughes, Dr., on chorea, 88; on bulbar paralysis, 171.
- Hydramic convulsions, 58.
- Hydrophobia, 118; history of, 118; mental origin of, 122; remedies for, 126.
- Hydrocephalus acquisita, 145.
- Hygienic treatment, 307.
- Hyoscyanus in chorea, 95; in mania, 371.
- Hyperemia, 34.
- Hypesthesia, 20, 143.
- Hypochondriasis, 324; remedies for, 327.
- Hystericalgia, 294; remedies for, 297.
- Hysteria, 75, 311; nature of, 76, 312; remedies for,
- Hystero-epilepsy, 75.
- Ice-bags in chorea, 92; in hystero-epilepsy, 81; in tetanus, 112.
- Ignatia in facial neuralgia, 244; in sciatica, 267; in hysteria, 321; in moral insanity, 345; in mental exhaustion, 386.
- Illusion, 357.
- Inanition, convulsions from, 58.
- Incoordination, of muscular movements, 18, 86, 185-186; in speech, 21.
- Infantile convulsions, 28; remedies for, 38-45
- inf. spinal paralysis, 154; remedies for, 156
- Infra-orbital neuralgia, 237.
- Inhibitory centre, 20, 107.
- Insane, treatment of the, 338, 361, 364, 366-375.
- Insomnia in tetanus, 108.
- Intellectual disorders, 348.
- Intercostal neuralgia, 249; remedies for, 253.
- Iris in hemicrania, 229; in facial neuralgia, 245
- Irritation, genito-urinary, 31; cerebral, 12-16, 355; tolerance of, 10.
- Ischias, 257.
- Janeway, Prof., on intercostal neuralgia, 252.
- Jarvis, Dr., on mania, 359.
- Joffroy, M., on prog. bulbar paralysis, 168
- Jones, C. Hanfield, on functional nervous diseases, 10.
- Kali bich. in hemicrania, 230.
- Kali brom. in convulsions, 55; in epilepsy, 72; in chorea, 101; in tetanus, 117; in aphasia, 210; in paralytic aphonia, 217; in delirium tremens, 401.
- Kali carb. in angina pectoris, 281, 276.
- Kali chloricum in facial paralysis, 162
- Kali iod. in epilepsy, 73; in hemiplegia, 141; in facial paralysis, 163; in paralysis of insane, 177; in locomotor ataxy, 194; in paralytic aphonia, 117; in aphasia, 213.
- Kalmia in facial neuralgia, 245.
- Karl Pauli on locomotor ataxy, 192.
- Keppé, Dr., on mania, 351, 354.
- Kirke, Dr., on chorea, 88.
- Kiwisch on puerperal convulsions, 50.
- Klapka on angina pectoris, 269, 274.
- Knee, hysterical, 311; phenomena of the, 189.
- Kudnow, Prof., on hydrophobia, 123.
- Kussmaul, Prof., on bulbar paralysis, 168; on "verbal deafness and blindness," 207.
- Labio-glossopharyngeal paralysis, 169.
- Lachesis in facial neuralgia, 245; in hysteria, 322.
- Lallemande, Perrin and Duray, MM., on alcoholic poisoning, 391.
- Langenbach on locomotor ataxy, 192.
- Lardolx on vasomotor epilepsy, 64.
- Larry, Baron, on tetanus, 103.
- Laxéque, Prof., on locomotor ataxy, 186.
- Lemoigne and Lusana's observations, 15.
- Lapelletier, M., on neuritis ascendens, 105.
- Leizerich on diphtheritic paralysis, 165.
- Leyden, Prof., on tetanus, 111; on spinal irritation, 305.
- Lithates, 107.
- Lobes, cerebral, functions of, 11; anterior, tumors of, 13; vertical, lesions of, 13.
- Lobulus supramarginalis, 13.
- Lockjaw, 104.
- Locomotor ataxy, 184; remedies for, 193.
- Longet, M., on corpora striata, 16; on the cerebral hemispheres, 11; on optic thalam. 17.
- Luczkiewicz on embolus of middle cerebral artery, 14; on agnaphia, 14, 207.
- Lycopodium in hysteria, 322; in angina pectoris, 276.
- Mackenzie, Dr., on chorea, 88.
- Maignault on diphtheritic paralysis, 163.
- Mania, 348; remedies for, 366-375; "mania de grandeur," 349.
- Massage in writer's palsy, 203; in paralytic aphonia, 217.
- Mastodynia, 230; remedies for, 233.
- Maudsley, Dr., on insanity, 353.
- Medulla oblongata, functions of, 21.
- Megrim, 223.

- Melancholia, 332; remedies for, 335.
 Memory, loss of, 18.
 Meningitis, cerebro-spinal, 146; basilaris, 22.
 Mental function, derangement of, 311; lesions affecting, 378.
 Mercurius in uramic convulsions, 60; in hemiplegia, 140; in facial paralysis, 163.
 Meryou, Dr., on reflex symptoms, 22.
 Meyer, Prof., on chorea, 82; on paralysis of the insane, 175, 176.
 Mezereum in facial neuralgia, 246.
 Microphites, 163.
 Migraine, 223.
 Mitchell, Dr. Weir, on hysteria, 314.
 Mollendorf on hemicrania, 228.
 Monomania, 348.
 Moral disorders, 311; moral insanity, 339; remedies for, 343.
 Mortality in tetanus, 108.
 Motor function, derangement of, 27; motor centres in cerebral cortex, 11, 15.
 Multiple sclerosis, 195, 197.
 Muscular movements, incoordination of, 18, 86, 185-188.
 Myelitis, 171, 176, 305.
 Natrum mur. in chorea, 96; in hemicrania, 230.
 Neoplasmata, cerebral, effects of, 13, 19.
 Nerve-stretching in locomotor ataxy, 192; in prosopalgia, 247; in sciatica, 264; accidental, 90.
 Nerve-tissue, atrophy of, 10.
 Nervous susceptibility, 28.
 Neuralgia, 10, 219; varieties of, 221; facial, 227; of the heart, 269; periodical, 220; suppressed, 273.
 Neuromata, mammary, 250.
 Neurosthenia, cerebral, 380.
 Niemeyer's theory of collateral edema, 12.
 Nothnagel on the cerebral cortex, 11; on vasomotor epilepsy, 64.
 Nucleus lentiformis, capsule of, pressure on, 17; lesions of, 17.
 Nutrition in paraplegia, 144.
 Nux vomica in convulsions, 60; in infantile paralysis, 157; in gastralgia, 291; in hypochondriasis, 330; in melancholia, 336; in mental exhaustion, 386; in delirium tremens, 401.
 Nystagmus, 13, 17.
 Ocular muscles, disturbances of, 20; spasm of, 13.
 Oculo-motorius, paralysis of the, 14, 17, 18.
 Odontalgia, 237.
 Oertel, Dr., on diphtheritic paralysis, 166.
 Ollivier on paralytic aphonia, 217.
 Opisthotonus, 47, 54, 102, 103, 115.
 Opium in convulsions, 42; in epilepsy, 72; in hemiplegia, 141.
 Optic thalami, functions of, 16; sclerose en plaques, 17; faradization of, 17.
 Orbital neuralgia, 223.
 Organic changes in nervous diseases, 9, 336.
 Orthotonus, 102.
 Osborn, Dr., on aphasia, 206.
 Ovaralgia, 295; remedies for, 297.
 Ovaries, compression of, in hystero-epilepsy, 79, 81; Dr. Chastrou on, 81.
 Paget, Sir James, on delirium tremens, 392.
 Palsy, local, 134; lateral, 134; facial, 137; wasting, 179; writers, 201. See *Paralysis*.
 Paralysis, 12, 134; corpora striata p., 16; thalami optici p., 17; of the bladder, 17, 143; crossed, 20; facial, 20, 16; hysterical, 14; of the oculo motorius, 18; p. agitans, 195; remedies for, 199; infantile spinal p., 134; remedies for, 156; labio-glosso-pharyngeal p., 21, 168; progressive general p., 12, 173; p. of the rectum, 143.
 Paralytic aphonia, 124; p. disorders, 134; p. stroke, 136.
 Paraplegia, 134, 142; epidemic, 145; reflex, 147; remedies for, 148, 150.
 Parasthesia, 220.
 Paresis, 13, 14, 17, 20, 86, 134, 142.
 Parks, Dr., on chorea, 88.
 Pathology of hystero-epilepsy, 80; of chorea, 89; of tetanus, 111; of hydrophobia, 123; of catalepsy, 132; of hemiplegia, 137; of paraplegia, 146; of infantile spinal p., 154; of facial paralysis, 160; of diphtheritic, p., 166; of progressive bulbar p., 171; of p. of the insane, 175; of muscular atrophy, 180; of locomotor ataxy, 190; of paralysis agitans, 199; of writer's palsy, 203; of aphasia, 208; of paralytic aphonia, 215; of hemicrania, 225; of prosopalgia, 239; of intercostal neuralgia, 251; of mastodynia, 251; of sciatica, 260; of angina pectoris, 273; of spinal irritation, 304; of moral insanity, 342, of mania, 354; of dementia, 378; of delirium tremens, 393.
 Patina, Dr., on cerebral tumors, 11, 12, 13.
 Peddie, Dr., on delirium tremens, 393.
 Pedunculus cerebri, functions of, 17.
 Peripheral paralysis, 158.
 Petit mal, 63, 73.
 Phosphates, 381.
 Phosphoric acid in chorea, 96.
 Phosphorus in paraplegia, 152; in infantile paralysis, 157; in wasting palsy, 182; in aphasia, 212; in mental exhaustion, 386; in angina pectoris, 276.
 Philepau on paralytic aphonia, 217.
 Phymosis, congenital, 32.
 Physiology of the nervous centres, 9.
 Physostigma in convulsions, 43; in tetanus, 114, 116.
 Phytolacca in mastodynia, 254.
 Picric acid in mental exhaustion, 387.
 Pinel on dementia, 378.
 Pituitary body, functions of the, 18.
 Pleurodynia, 249.
 Pleurosthotonus, 102.
 Plumbum in locomotor ataxy, 193; in infantile paralysis, 157; in bulbar p., 172.
 Polygonum punctatum in sciatica, 268.
 Polymyositis, chronic, 179.
 Pons Varolii, functions of, 20.
 Post-paralytic chorea, 85.
 Pregnancy, convulsions during, 49; in chorea, 87.
 Private treatment of insane, 364.
 Prognosis in infantile convulsions, 36; in c. of the new-born, 48; in puerperal c., 52; in chorea, 91; in epilepsy, 65; in paraplegia, 145; in tetanus, 112; in facial paralysis, 139; in infantile spinal p., 154; in bulbar p., 170; in p. of the insane, 176; in diphtheritic p., 165; in muscular atrophy, 181; in locomotor ataxy, 191; in paralysis agitans, 199; in writer's palsy, 203; in aphasia, 208; in paralytic aphonia, 216; in neuralgia, 222; in hemicrania, 225; in facial neuralgia, 240; in intercostal n., 253; in sciatica, 262; in angina pectoris, 274; in neuralgia of the female genital organs, 296; in spinal irritation, 306; in hysteria, 319; in hypochondriasis, 326; in mania, 357; in dementia, 378; in delirium tremens, 395.
 Progressive bulbar paralysis, 165; remedies for, 172; p. paralysis of the insane, 173; p. muscular atrophy, 179; remedies for, 182; p. locomotor ataxy, 184; remedies for, 193.
 Prosopalgia, 237.

- Ptoſis, 18.
Puerperal convuſions, 48; remedies for, 54;
p. mania, 368.
Pulsatilla in hemiplegia, 231; in brain-fag, 387.
Pupils, changes in the, 17, 173; contracted, 20,
25; dilated, 18, 23, 87; unequal, 173.

Rabies, 124.
Rabon, Dr., on treatment of the insane, 364.
Radcliffe, Dr., on mental exhaustion, 381; on
sciatica, 282.
Recrudescence in hydrophobia, 119.
Rectal cramp, 32.
Rectum, paralysis of the, 143.
Redness, circumscribed, 17.
Reflex convuſions, 28, 29; r. chorea, 87; r.
paraplegia, 147; r. aphonia, 215.
Rell, Iſland of, lesions near the, 13, 14, 206.
Remak on chorea, 92; on locomotor ataxy, 191.
Respiratory centre, 21.
Reynolds, Dr., on hysteria, 75, 318; on chorea,
88, 92.
Rheumatic tetanus, 102, 109.
Rheumatism in chorea, 88.
Rhus tox. in sciatica, 268; in brain-fag, 387.
Riedel on Kall brom., 72.
Roebuck on paralytic aphonia, 217.
Rogers, M., on chorea, 88.
Rokitsansky on chorea, 90; on tetanus, 110.
Rombert on atrophy of nerve-tissue, 10; on
chorea, 88; on facial paralysis, 159; on
locomotor ataxy, 190, 191; on scrivener's
palsy, 201, 203; on tetanus, 110.
Rosenstein on anemia, 51.
Rosenthal on eclampsia, 34; on chorea, 92.
Rotation of the body, 18.

Sanguinaria in hemiplegia, 232.
Savage and Sayer on paralysis agitans, 196.
Scauzoni on puerperal convuſions, 50.
Schiff, Prof., on the spinal cord, 25.
Schroeder on eclamptiform convuſions, 23.
Schuetz on infantile convuſions, 22, 33; on
dentition, 30; on rectal cramp, 32; on con-
vulsions of the new-born, 46; on puerperal
c., 50; on c. of adults, 58; on hysteria, 75,
312, 313.
Sciatica, 237; remedies for, 264-268.
Sclerose en plaques of optic thalami, 17.
Scolz, Dr., on cerebral abscess, 14.
Scrivener's palsy, 201; remedies for, 204.
Scutellaria in hydrophobia, 127; in delirium
tremens, 402; in catalepsy, 133.
Secale in mental exhaustion, 367; in infantile
paralysis, 157.
Secondary convuſions, 28, 32.
Sedillot on paralytic aphonia, 216.
Seeligmüller on the nervous accessories, 23.
Semmering on nursing infants, 29.
Senses, disturbances of the, 13, 18.
Sensibility, disturbances of, 13, 17.
Sensory function, derangement of the, 219.
Sepia in hemiplegia, 233; in prosopalgia, 247.
Sequin, Dr., on hemiplegia, 208.
Setchenow, M., on the tubercula quadri-
gemina, 19.
Severin, Dr., on hydrophobia, 122.
Sex, influence of, 76, 87, 131, 170, 202, 224, 238,
239, 272, 285, 354, 303.
Sexual appetite, 18.
Shaking palsy, 193.
Shampooing in facial paralysis, 161; in infantile
p., 156.
Sick-headache, 223.
Silicea in chorea, 98.
Sinusitis in chorea, 96.
Simon, M., on convuſions, 96.
Skim-milk in angina pectoris, 279.
Sklis, glossy, in sciatica, 258.

Sleep, 383.
Sleepiness, 18.
Solly on writer's palsy, 203.
Spasm, 28, 105; of extremities, 13, 106; of the
glottis, 21, 108; of the lower sphincters, 106.
Spasmodic diseases, 27.
Spasms, crossed clonic, 12; tonic, 105.
Speech, retarded, 171, 8; impaired, 83.
Sphincter centres, 26.
Spiegelberg, Prof., on the cause of puerperal
convuſions, 50.
Spigella in hemiplegia, 234.
Spinal cord, functions of the, 21; inhibitory
action of, 20; Marshall Hall's theory of,
21; sclerosis of, 90, 184, 146; epilepsy of,
143; hemorrhage of, 145; hemiplegia,
spinal, 142; softening of, 146; irritation
of, 301, 303; remedies for, 308; neuralgia
of, 301; granular proliferation of, 80.
Stannum in hypochondriasis, 330; in infantile
paralysis, 157.
Staphysagria in epilepsy, 71; in hypochon-
driasis, 331.
Stark, Carl, observations of, 12.
Steam-bath in hydrophobia, 125, 128.
Stenocardia, 269; crampoid, form of, 269;
syncopal, 270; recurrent, 271.
Strabismus, convergent, 20; divergent, 18.
Stramonium in convuſions, 55; in chorea, 95;
in mania, 368; in aphasia, 211; in moral
insanity, 346.
Strommeyer on writer's palsy, 203.
Structural changes, 9.
Strychnia in chorea, 97; in wasting palsy, 182.
Strychnia phos. in spinal irritation, 309.
Stump, neuralgia of the, 265.
Sudamina in tetanus, 107.
Sulphur in sciatica, 268.
Supra-orbital neuralgia, 237.
Suppressed neuralgia, 273.
Suspended animation, 130.
Sweating in tetanus, 112.
Sydenham on chorea, 83.
Sympathetic tetanus, 110; convuſions, 28, 39.
Symptomatic convuſions, 28, 29; tetanus, 110.
Symptoms of infantile convuſions, 34; of c.
of the new-born, 47; of puerperal c., 51;
of epileptic c., 61; of hystero-epilepsy, 77;
of chorea, 83; of tetanus, 104; of hydro-
phobia, 119; of rabies, 124; of catalepsy,
130; of hemiplegia, 136; of infantile spinal
paralysis, 154; of facial p., 158; of diph-
theritic p., 164; of bulbar p., 168; of p. of
the insane, 173; of muscular atrophy, 179;
of locomotor ataxy, 185; of paralysis agitans,
193; of scrivener's palsy, 201; of
aphasia, 205; of paralytic aphonia, 214;
of neuralgia, 219; of hemiplegia, 223; of
n. trigemini, 237; of intercostal n., 249; of
mastodynia, 250; of sciatica, 257; of angina
pectoris, 269; of gastralgia, 283; of spinal
irritation, 301; of hysteria, 315; of hypo-
chondriasis, 324; of melancholia, 332; of
moral insanity, 339; of mania, 345; of
dementia, 376; of brain fag, 381; of deli-
rium tremens, 389.
Syphilis in hemiplegia, 137; in paraplegia,
147; in epilepsy, 67.
Tabes dorsalis, 184, 305.
Tamisier on tobacco in hemiplegia, 138; in
paraplegia, 147; in locomotor ataxy, 190.
Tanner, Dr., on water-diet, 38.
Tarantula in chorea, 98; in paralysis agitans,
199; in hystericalgia, 290; in spinal irrita-
tion, 310; in hysteria, 322; in mania, 371.
Tea and coffee, abuse of, 286.
Temperature, anomalies of, 17; rise of, in
hystero-epilepsy, 79; in tetanus, 107; in
mania, 349; in sciatica, diminution of, 258.

- Tenotomy in writer's palsy, 203.
 Teste, Dr., on the effects of tobacco, 283.
 Tetanus, 102; traumatic, 103; remedies for, 113; toxic, 102, 109; sympathetic, 110.
 Thalamic epilepsy, 63.
 Thalami optici, functions of, 17; anterior and posterior parts of, 17; faradization of, 17; sclerose en plaques, 17.
 Thompson, Dr., on sciatica, 260.
 Thrombosis of arteria fossæ Sylvii, 17, 136; in hemiplegia, 136, 137; in aphasia, 138; caused by burn, 138.
 Thurman, Dr., on insanity, 339.
 Tic-douloureux, 221, 237.
 Tissot on hystero-epilepsy, 76.
 Tissue alterations, 9, 356.
 Tobacco in hemiplegia, 138; in paraplegia, 147; in locomotor ataxy, 190; in gastralgia, 283.
 Todd, Dr., on chorea, 87; on locomotor ataxy, 184.
 Tracheotomy in tetanus, 106.
 Traube and Rosenstein on anæmia, 51.
 Treatment of infantile convulsions, 37; of c. of the new-born, 48; of puerperal c., 52; of non-puerperal c., 59; of epileptic c., 68; of hystero-epilepsy, 80; of chorea, 91; of tetanus, 112; of hydrophobia, 124; of cataplexy, 132; of hemiplegia, 138; of paraplegia, 147; of infantile spinal paralysis, 155; of facial p., 160; of diphtheritic p., 166; of bulbar p., 171; of p. of the insane, 176; of muscular atrophy, 182; of locomotor ataxy, 191; of paralysis agitans, 199; of scrivener's palsy, 203; of aphasia, 209; of paralytic aphonia, 216; of neuralgia, of hemicrania, 226; of facial neuralgia, 240; of intercostal n., 253; of sciatica, 262; of angina pectoris, 274; of gastralgia, 288; of neuralgia of female genital organs, 297; of spinal irritation, 307; of hysteria, 319; of hypochondriasis, 326; of melancholia, 334; of moral insanity, 342; of mania, 358; of dementia, 379; of cerebral exhaustion, 381, 383; of delirium tremens, 396, 398.
 Tremor scillæ, 197; t. mercurialis, 197, 394; saturninus, 197; simplex, 197; potatorum, 197, 380.
 Trismus, 102, 104; t. nascentium, 102, 46, 53.
 Troussseau, Prof., on diphtheritic paralysis, 165; on progressive bulbar paralysis, 168; on locomotor ataxy, 186, 187.
 Tubercula quadrigemina, functions of, 19; diseases affecting, 19; faradization of, 19.
 Tumors, cerebral, 11; of the convexity, 12; of frontal lobes, 13; of vertical lobes, 13; of posterior lobes, 14; of cerebral ganglia, 16, 18, 20.
 Underwood, Dr., on convulsions of the new-born, 46.
 Unilateral effects of lesions, 11-21, 136.
 Urates, 107.
 Ustilago madis in ovaralgia, 300.
 Uterus, neuralgia of, 294; remedies for, 294.
 Vaginal douche, 297.
 Vaginodynia, 293; remedies for, 297.
 Valleix, tender points of, 223, 238, 249, 261.
 Vasomotor centres, 25; disturbances of, 17, 20, 64; irritation of, 64, 260.
 Velpeau on puerperal convulsions, 49.
 Veratrum album in hemicrania, 235; in gastralgia, 292; in melancholia, 338; v. viride in convulsions, 45; in chorea, 99.
 Verneuil on thrombosis, 138.
 Vertebrae, injury of, 142, 146, 305.
 Vertigo, 12, 18-20; v. epileptique, 63.
 Veyssiere on the optic thalami, 17.
 Vicarious action, Flouren's law of, 12.
 Vision, disturbance of, 17-19; destruction of, 16, 19, 24.
 Volltion, 357.
 Von Graefe on diphtheritic paralysis, 163.
 Von Ziemssen on chorea, 83, 92; on paralytic aphonia, 215; on chorea of laryngeal muscles, 87.
 Vulpius, M., on hemiplegia, 138; on diphtheritic paralysis, 166.
 Warmth, artificial, in sciatica, 263.
 Wasting palsy, 179.
 Water-diet, 58.
 Watson, Dr., on hysteria, 315.
 Wernich on eclamptiform convulsions, 23.
 Westphal on guinea pigs, 23; on the "phenomena of the knee", 189.
 Wet-pack in delirium tremens, 398; in infantile paralysis, 156.
 Worcester, Dr., on insanity, 338.
 Writer's cramp, 201.
 Xanthoxylum in dysmenorrhœa, 300.
 Youatt on hydrophobia, 123, 125; on rabies in the dog, 124.
 Ziemssen, Prof., on chorea, 83, 87, 92; on c. of laryngeal muscles, 87; on paralytic aphonia, 215.
 Zinc phosphide in locomotor ataxy, 194; in brain tag, 387; z. sulph. in chorea, 99.
 Zones, epileptogenous, 24.

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